

GEOTECHNICAL

ECOLOGICAL

CONSTRUCTION MANAGEMENT

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NEW ENGLAND BIOASSAY A DIVISION OF GZA

	CHRONIC AQUA	TIC TOXICI	TY TEST RE	PORT		
Permitee:	Pine Broo	Pine Brook Country Club NPDES # MA0032212				
Report submitted to:	42 Ne	wton Street			-	
	Westo	n, MA 02493				
Sample ID:	E	ffluent		-		
Test Month/Year:	Octo	ber 2019		_		
NEB Proj#	05.0	752101.00		_		
Test Type / Method:	Ceriodaphnia dubi	a Modified C	hronic Static	- :-Renewal Fi	reshwater	
Test Type / Method: Ceriodaphnia dubia Modified Chronic Static-Renewal Freshwater Test Method 1002.0; EPA 821-R-02-013						
Pimephales promelas Modified Chronic Static-Renewal Freshwater					Freshwater	
	Test Method 1000.0; EPA 821-R-02-013					
Effluent Sample Dates:	#1 10/20-21/1	9 #2	10/22-23/	19 #3	10/24-25/19	
	Ni					
Test Start	Date:	10/2	2/19			
	Res	sults Summa	iry			
Your results were as fol	lows:					
Passed all permit limits						
	Acu	te Test Resu	lts			
Species	LC50	A-NOEC	Perr	nit Limit	Pass / Fail	
Ceriodaphnia dubia	>100%	100%	≥	100%	Pass	
Pimephales promelas	>100%	100%	≥	100%	Pass	
	· · · · · · · · · · · · · · · · · · ·					

Acute Test Results						
Species	LC50	A-NOEC	Permit Limit	Pass / Fail		
Ceriodaphnia dubia	>100%	100%	≥ 100%	Pass		
Pimephales promelas	>100%	100%	≥ 100%	Pass		

Chronic Test Results					
Species C-NOEC C-LOEC IC25 Permit Limit Pass/Fail					
Ceriodaphnia dubia	100%	>100%	>100%	≥ 25%	Pass
Pimephales promelas	100%	>100%	>100%	≥ 25%	Pass

Data Qualifiers affe	ting this test:		
			12

Certifications & Approvals: NH ELAP (2071), NJ DEP (CT405)

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Test Report Certification

Permittee name:	Pine Brook Country Clu	ıb	Permit number:	MA0032212			
Client sample ID:	Effluent		Test Start Date:	10/22/19			
-							
Who	le Effluent Toxicity Test Re	eport Cert	ification (Perm	nittee)			
I certify under	penalty of law that this documen	t and all atta	chments were pre	pared under my			
•	pervision in accordance with a sys	_	-	•			
	er and evaluate the information su			·			
·	age the system, or those persons		_				
	nitted is, to the best of my knowle	•		•			
aware that there	are significant penalties for subm	=		ig the possibility of			
fine and imprisonment for knowing violations.							
Consulted and							
Executed on:	(Dota)	Authorizod	Ciamatura				
	(Date)	Authorized	Signature				
Print or Type Name and Title							
		,,					
		Print or Typ	e the Permittee's I	Name			
			MA003221	2			
		Print or Typ	e the NPDES Perm	it Number			
Whole Eff	luent Toxicity Test Report	Certificat	ion (Bioassay I	Laboratory)			
Tł	ne results reported relate only to	the samples:	submitted as recei	ved			
I certify under	penalty of law that this documen	t and all atta	chments were pre	pared under my			
direction or sup	pervision in accordance with a sys	tem designed	d to assure that qu	alified personnel			
properly gather and evaluate the information submitted. Based on my inquiry of the person or							
persons who manage the system, or those persons directly responsible for gathering information, the							
information subm	nitted is, to the best of my knowle	dge and beli	ef, true, accurate,	and complete. I am			
aware that there	are significant penalties for subm			ng the possibility of			
fine and imprisonment for knowing violations.							

Executed on:

2 of 85 NEB Issued: 11/14/19

Kimberly Wills

Laboratory Manager

New England Bioassay a division of GZA

General Test Conditions

Permittee name	Pine Broo	k Country Club	Permit num	ber:MA0032212			
Client sample ID_	E	ffluent	Test Start D	Pate: 10/22/19			
:==							
	Saı	mple Collection Informa	ation				
Effluent #1 Dates/Til	mes: <u>10/20-21/19</u> @	1353-0822 Receiving	Water #1 Date/1	Time: 10/21/19 @ 0845			
Effluent #2 Dates/Ti	mes: <u>10/22-23/19</u> @	1501-0830 Receiving	Water #2 Date/1	Time: 10/23/19 @ 0900			
Effluent #3 Dates/Til	mes: <u>10/24-25/19</u> @	1734-0703 Receiving	Water #3 Date/1	Time: 10/25/19 @ 0747			
Were a minimum of three samples collected? Yes \square No \square *(see note below)							
Were samples used	within the first 36 hou	rs of collection? Yes	☑ No □ * (s	ee note below)			
* sample collection r	* sample collection note:						
		Test Conditions					
Permittee's Receivin	g Water: Pine Brook						
Ceriodaphnia dubia							
Dilution water: Laboratory synthetic soft water (hardness 45 - 55 mg/L CaCO3)							
• Control water: Receiving water collected at a point immediately upstream of or away from the discharge							
Pimephales promela	Pimephales promelas						
• Dilution water: La	aboratory synthetic so	ft water (hardness 45 - 55	mg/L CaCO3)				
Control water: Rec	Control water: Receiving water collected at a point immediately upstream of or away from the discharge						
Effluent concentration	ons teste 0%, 6.25%, 1	2.5%, 25%, 50%, 100%					
Was effluent salinity	adjusted? No 🗹	Yes U with Instant C	cean sea salts to	ppt			
		asured using 4500 CL-G DI	PD Colorimetric	Method			
• Dechlorination wa	as not required						
Aeration: Did Dissolv	ved Oxygen levels fall l	pelow 40% saturation?	Yes 🗀 No 🗅	<u>/</u>			
Test Aera	ated at <100 bubbles/	minute as of: N/A	(for Fathead n	ninnow test only)			
TRC results and furth	ner information about	aeration of samples can b	e found attache	d in "sample receipt			
chemistry"							
Reference Toxicant Data							
Ceriodaph	nia dubia		Fathead n	ninnows			
Date:	10/1/19		Date:	10/29/19			
-	Sodium chloride		-	Sodium chloride			
Dilution Water:	NEB CTRMH	Di	ilution Water:	NEB Soft Water			
Organism Source:			anism Source:	NEB			
Reproduction IC25:		_	Growth IC25:				
- Results within range			 s within range				

Ceriodaphnia dubia Test Results

Permittee name:	Pine Brook Country Club Per		rmit number:	MA0032212	
Client sample ID:	Effluent Te		Test Dates: _	10/22/19	10/28/19
		Test Acceptability Crit	teria		
Lab Diluent Survival:	90 %	Mean Lab Diluent Reproduc	ction:	24.2yo	oung per female
Brook Control Survival:	100%	Mean Brook Control Reproduction:		26.2yo	oung per female
Thiosulfate Control Survival:	N/A%	Mean Thiosulfate Control R	eproduction:	N/A yo	oung per female
Presence of an asterisk (*) indicof the following page.	cates EPA crite	ria was not met, see explana	tion in the "Res	ults Discussion"	section at the bottom
Test Results					

		Permit Limit	Test Result	Pass/Fail Status
Acute	48 hr LC50	≥ 100%	>100%	Pass
Data	48 hr NOEC		100%	
Duta	TUa			
	Chronic LC50		>100%	
	Survival C-NOEC		100%	
	Survival C-LOEC		>100%	Maria Carlo
	Reproduction C-NOEC		100%	
Chanaia	Reproduction C-LOEC		>100%	100 3 408 741
Chronic Data	Reproduction IC25		>100%	
Juliu	Reproduction IC50		>100%	
	Reportable C-NOEC	≥ 25%	100%	Pass
	Reportable C-LOEC		>100%	
	MATC		>100%	
	TUc			

Presence of an asterisk (*) indicates qualified data, see explanation in the "Results Discussion" section at the bottom of the following page.

Test Variability					
Reproduction PMSD:28.4% Upper & Lower EPA bounds: 13 - 47%	ligh				
PMSD exceeds upper bounds. Test results are highly variable and may not be sensitive enough to determine					
the presence of toxicity at the permit limit concentration (PLC)					
The PMSD falls within the upper (47%) and lower (13%) bounds. Results are reportable.					
\square PMSD falls below the lower bound test variability criterion. The test is very sensitive. The relative percent					
difference (RPD) between the control and each treatment was calculated and compared to the lower bound.					
The RPD values for all concentrations fall below the lower bound. Any differences observed in this test are considered statistically insignificant.					
Some of the concentrations that were flagged as statistically significant have RPD values that fall below the lower bound. Any differences observed in these concentrations will not be considered statistically significantly decreases from the control.					
\square No statistically significant reductions were observed in this test.					

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Ceriodaphnia dubia Test Results

Permittee name:	Pine Brook Country Club	Permit number:	MA0032212			
Client sample ID:	Effluent	Test Dates: 10/22/19	- 10/28/19			
Concentration - Response Evaluation						
Survival: #12 No significant effects at any test concentration with a flat concentration-response curve. Test concentrations performed very similarly to dilution control.						
	Reproduction: #13 No significant effects at any test concentration with a relatively flat concentration-response curve. Test concentrations performed equal to or better than the dilution control.					
The concentration - response	relationship was reviewed and the follow	ing determination was made:				
Survival Reproduction						
XX	Results are reliable and reportable					
	Results are anomalous (see explanation below)					
Results are inconclusive - retest (see explanation below)						
	Results Discussion (if a	pplicable):				

Pimephales promelas Test Results

Permittee name:	Pine Brook Country	Club	Permit number:	MA0032212
Client sample ID:	Effluent	Fest Dates:	10/22/19	10/29/19
	Test Acceptal	bility Criteria		
Lab Diluent Survival: Brook Control Survival:			0.50 mg	
Thiosulfate Control Survival: Presence of an asterisk (*) inc	N/A % Mean Thiosulf	ate Control Growth:		scussion" section
at the bottom of the following		met, see explanation	Till the nesalts bis	ocussion section
	Test Ro	esults		

Permit Limit Test Result Pass/Fail Status

	Permit Limit Test Result Pass/Faii Statt				
Acuto	48 hr LC50	≥ 100%	>100%	Pass	
Acute Data	48 hr NOEC		100%		
Duta	TUa				
	Chronic LC50		>100%		
	Survival C-NOEC		100%	Hand Pass	
	Survival C-LOEC		>100%		
	Growth C-NOEC		100%	MARKET SE	
Chara asia	Growth C-LOEC		>100%		
Chronic Data	Growth IC25		>100%		
Duta	Growth IC50		>100%		
	Reportable C-NOEC	≥ 25%	100%	Pass	
	Reportable C-LOEC		>100%		
	MATC		>100%		
	TUc				

Presence of an asterisk (*) indicates qualified data, see explanation in the "Results Discussion" section at the bottom of the following page.

Test Variability
Growth PMSD:11.1%_ Upper & Lower EPA bounds: 12 - 30%
difference (RPD) between the control and each treatment was calculated and compared to the lower bound The RPD values for all concentrations fall below the lower bound. Any differences observed in this test
are considered statistically insignificant. Some of the concentrations that were flagged as statistically significant have RPD values that fall below the lower bound. Any differences observed in these concentrations will not be considered statistically significantly decreased from the control.
No statistically significant reductions were observed in this test.

Pimephales promelas Test Results

Permittee name	Pine Brook Country Club	Permit number: MA0032212												
Client sample ID	Effluent [7]	est Dates:10/22/19												
	Concentration - Response Evaluation													
	2 No significant effects at any test concentration st concentrations performed very similarly to dilu													
res	2 No significant effects at any test concentration ponse curve. Test concentrations performed boution control.	<u>•</u>												
	- response relationship was reviewed and the fo	ollowing determination was made:												
x	X Results are reliable and reportable													
ą	Results are anomalous (see expla	anation below)												
: =	Results are inconclusive - retest (se	e explanation below)												
	Results Discussion (if app	licable):												

Please note that survival of fish in the brook control screened concurrently with the effluent was 72.5% at test completion which is below the EPA minimum acceptability criterion of \geq 80% survival in controls. Since the brook was not used as the test dilution water, it caused no adverse effect on the oucome of the test.

TEST METHODS

Ceriodaphnia dubia

Test type: Modified Chronic Static Renewal Freshwater Test

Test Reference Manual: EPA-821-R-02-013 "Short-Term Methods for Estimating the Chronic Toxicity of

Effluents and Receiving Water to Freshwater Organisms"

Test Method: Ceriodaphnia dubia Survival and Reproduction Test - EPA 1002.0

Temperature: 25 °C \pm 1°C (Temperatures should not deviate by more than 3°C during the test)

(required)

Light Quality: Ambient Laboratory Illumination (recommended)

Light Intensity: 10-20 μE/m2/s, or 50-100 ft-c (recommended)

Photoperiod: 16 hours light, 8 hours dark (recommended)

Test chamber size: 30 mL (recommended minimum)

Test solution volume: 15 mL (recommended minimum)

Renewal of Test Solutions: Daily (required)

Age of Test Organisms: Less than 24 hours; and all released within a 8-h period (required)

Number of Neonates

Per Test Chamber: 1 Assigned using blocking by known parentage (required)

Number of Replicate Test

Chambers Per Treatment: 10 (required minimum)

Number of Neonates Per

Test Concentration: 10 (required minimum)

Feeding Regime: Fed 0.1 mL each of YCT and algal suspension per exposure chamber daily.

(recommended)

Cleaning: Use new plastic cups daily (recommended)

Aeration: None (recommended)

Test Duration: Until 60% or more of control females have three broods

(maximum test duration 8 days) (required)

Endpoints: Survival and reproduction (required)

Test Acceptability: 80% or greater survival of all control organisms and an average of 15 or more

young per surviving female in the control solutions. 60% of surviving control

females must produce three broods. (required)

Sampling Requirements: Minimum of three samples with a maximum holding time of 36 hours before

first use. (required)

Sample volume required: 1 L/Day (recommended)

Pimephales promelas

Test type: Modified Chronic Static Renewal Freshwater Test

Test Reference Manual: EPA-821-R-02-013 "Short-Term Methods for Estimating the Chronic Toxicity of

Effluents and Receiving Water to Freshwater Organisms"

Test Method: Pimephales promelas Survival and Growth Test - EPA 1000.0

Temperature: $25 \,^{\circ}\text{C} \pm 1 \,^{\circ}\text{C}$ (Temperatures should not deviate by more than $3 \,^{\circ}\text{C}$ during the test)

(required)

Light Quality: Ambient Laboratory Illumination (recommended)

Light Intensity: 10-20 μE/m2/s, or 50-100 ft-c (recommended)

Photoperiod: 16 hours light, 8 hours dark (recommended)

Test chamber size: 600 mL (500 mL is recommended minimum)

Test solution volume: 250 mL (recommended minimum)

Renewal of Test Solutions: Daily (required)

Age of Test Organisms: Newly hatched larvae less than 24 hours old (required)

Number of Organisms

Per Test Chamber: 10 (recommended)

Number of Replicate Test

Chambers Per Treatment: 4 (required minimum)

Number of Organisms Per

Test Concentration: 40 (required minimum)

Feed 0.15 g of a concentrated suspension of newly hatched brine shrimp

nauplii twice daily, 6 h between feedings (at the beginning of the work day prior to renewal, and at the end of the work day following renewal).

Sufficient Artemia are added to provide an excess.

Cleaning: Siphoned daily, immediately before test solution renewal (required)

Aeration: None, unless DO concentration falls below 4.0 mg/L, at which point the rate

should not exceed 100 bubbles/minute. (recommended)

Test Duration: 7 days (required)

Endpoints: Survival and growth (weight) (required)

Test Acceptability: 80% or greater survival in controls; average dry weight per surviving organism in

control chambers equals or exceeds 0.25 mg (required)

Sampling Requirements: Minimum of three samples with a maximum holding time of 36 hours before

first use. (required)

Sample volume required: 2.5 L/Day (recommended)

CERIODAPHNIA DUBIA DATASHEETS & STATISTICAL ANALYSIS

NEW ENGLAND BIOASSAY TOXICITY DATA FORM CHRONIC COVER SHEET

CLIENT:	Pine Brook Country Club	C.dubia TEST ID#	19-1508a
ADDRESS:	42 Newton Street	CHAIN OF CUSTODY #	C39-3895/96
	Weston, MA 02193	NEB PROJECT #	05.0752101.00
PERMITTEE:	Pine Brook Country Club	SAMPLE ID:	Effluent
PERMIT NUMBER:	MA0032212		
DILUTION WATER:	Laboratory Soft Water		

INVERTEBRATES

TEST SET-UP TECHNICIAN:	СН
TEST SPECIES:	Ceriodaphnia dubia
NEB LOT #	Cd19 (RMH 241)
AGE:	< 24 hours
TEST SOLUTION VOLUME (mls):	15
ORGANISMS PER TEST CHAMBER:	1
ORGANISMS PER CONCENTRATION:	10

LABORATORY CONTROL WATER (SRCF)

Lot Number	Hardness mg/L CaCO ₃	Alkalinity mg/L CaCO ₃
C39-S025	46	30

	DATE	TIME
TEST START:	10/22/19	1403
TEST END:	10/28/19	1320

COMMENTS:			
_			
_			
REVIEWED BY:	11/1/1/1/1/1/1/1/1/1/1/1/1/1/1/1/1/1/1/1	DATE:	11/13/19
			77151

NEW ENGLAND BIOASSAY - CHRONIC TOXICITY TEST BROOD DATA SHEET

FACILITY NAME & ADDR	RESS: Pine B	rook Count	ry Club,	42 Newton Street	t, Weston MA 021	93	
NEB PROJECT NUMBER:	05.075	2101.00	NEB T	EST NUMBER:	19-1508a	COC#	C39-3895/96
TEST ORGANISM:	Ceriodaphnia du	bia	AGE:	<24 hours		Lot # 0	Cd19 (RMH 241
START DATE:	10/22/19	TIME:	1403	END DATE:	10/28/19	TIME:	1320

			Cultur	e Lot#			Cd19 (F	RMH 24	41)						
	Cup#	A1	A2	А3	A4	A7	A8	A9	A10	A11	A12	Total Live	# Live	Analyst-	Analyst-
Effluent	Day					Rep	licate					Young	Adults	Transfer	Counts
Concentration	Number	Α	В	С	D	Е	F	G	Н	1	J				
	0	√	✓	✓	✓	✓	√	✓	✓	✓	✓	0	10	СН	
	1	✓	✓	✓	✓	✓	√	✓	✓	✓	✓	0	10	PD	
	2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	0	10	СН	
	3	5	7	✓	✓	5	6	5	4	✓	6	38	10	PD	PD
NEB Lab	4	9	12	5	✓	✓	✓	✓	✓	6	10	42	10	PD	PD
Diluent	5	✓	✓	8	3	9	9	8	9	8	✓	54	10	PD	PD
	6	16	16	11	9	√/x	10	11	8	10	17	108	9	ко	ко
	7														
	totals	30	35	24	12	14	25	24	21	24	33	242	9		МС
		Α	В	С	D	Ε	F	G	Н	1	J			YELV.	
	0	✓	✓	✓	✓	√	✓	✓	✓	✓	✓	0	10		
	1	√	✓	✓	√	√	✓	✓	✓	✓	✓	0	10		
	2	√	✓	✓	✓	✓	✓	✓	✓	✓	✓	0	10		
Pine Brook	3	6	7	5	7	6	8	7	6	6	5	63	10		
Control	4		7	✓	10	6	1	10	9	✓	5	48	10		
	5	√	✓	8	✓	✓	11	✓	✓	6	✓	25	10		
	6	15	19	2	16	11	11	14	15	12	11	126	10		
	7														
	totals	21	33	15	33	23	31	31	30	24	21	262	10		
		Α	В	С	D	E	F	G	Н	1	J				
	0	√	√	√	√	✓	√	√	✓	√	√	0	10		
	1	✓	✓	✓	√	✓	√	✓	✓	✓	✓	0	10		
	2		√	✓	√	✓	√	✓	√/x	✓	✓	0	9		1173
	3	7	7	3	6	6	4	6	Х	5	5	49	9		
6.25%	4	11	8	√	✓	8	✓	9	Х	7	11	54	9		
	5	√	✓_	7	9	✓	8	✓	Х	✓	✓	24	9		
	6	10	18	13	10	11	15	11	Х	10	15	113	9		
	7														
	totals	28	33	23	25	25	27	26	0	22	31	240	9		

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NEW ENGLAND BIOASSAY - CHRONIC TOXICITY TEST BROOD DATA SHEET

FACILITY NAME & ADDRESS: Pine Brook Country Club, 42 Newton Street, Weston MA 02193

NEB PROJECT NUMBER: 05.0752101.00 ORGANISM: Ceriodaphnia dubia START DATE: 10/22/19

				Total	#15										
Effluent	Day					Rep	licate					Live	# Live Adults		
Concentration	Number	Α	В	С	D	E	F	G	Н	1	J	Young			1 = 3
	0	✓	✓	√	✓	✓	✓	✓	✓	✓	✓	0	10		
	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	0	10		
	2	√	✓	✓	✓	✓	✓	√	✓	✓	✓	0	10		
	3	5	5	5	6	5	6	5	5	5	7	54	10		
12.5%	4	7	5	✓	✓	8	1	✓	✓	✓	10	31	10		
12.570	5	√	✓	9	8	✓	3/x	10	8	6	✓	44	9		
	6	22	19	12	14	8	Х	10	7	12	14	118	9		
	7														
	totals	34	29	26	28	21	10	25	20	23	31	247	9		
		Α	В	С	D	E	F	G	Н		J				
	0	√	√	\	√	✓	✓	✓	√	√	✓	0	10		
	1	√	✓	✓	√	✓	✓	√	✓	√	/	0	10		
	2	✓	√	√	√	✓	✓	✓	✓	✓	✓	0	10		
	3	6	7	5	6	6	7	6	6	5	5	59	10		
25%	4	12	10	✓	✓	8	8	✓	8	✓	9	55	10		
	5	✓	✓	6	7	✓		8	✓	8	✓	29	10		
	6	21	16	13	11	13	13	7	10	9	AE/x	113	9		
	7													L. X	
	totals	39	33	24	24	27	28	21	24	22	14	256	9		
		Α	В	С	D	E	F	G	Н	I.	J				-
	0	√	√	√	✓	√	√	√	√	√	✓	0	10		
	1	✓	√	✓	0	10		1							
	2	✓	✓	√	√	✓	✓	✓	✓	✓	✓	0	10		
	3	6	6	✓	✓	4	6	6	7	6	6	47	10		
50%	4	11	9	6	4	8	√	10	✓	7	12	67	10		
	5	✓	√	8	8	✓	10	✓	7	✓	 	33	10		
	6	17	19	12	10	12	12	9	11	13	12	127	10		
	7														-
											2.5				
	totals	34	34	26	22	24	28	25	25	26	30	274	10		
		Α	В	С	D	E	F	G	Н	1	J				-
	0	√	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	0	10	3.1	-								
	1	√	0	10											
	2	√	✓	√	\ -	0	10		-						
	3	5	7	5	5	6	5	4	6	6	6	55	10		
100%	4	10	11	✓	✓	8	√	√	√	✓	10	39	10		
	5	√	√	10	7	✓	8	9	8	11	✓	53	10		
	6	14	19	11	13	10	6	10	13	13	14	123	10		
	7														-
	totals	29	37	26	25	24	19	23	27	30	30	270	10		

Report Date:

31 Oct-19 14:52 (p 1 of 6)

=									Test Cod	le/ID:		19-1508a / 00-2747-3077				
Cerioda	aphnia	7-d Survival an	d Repr	oduc	tion Te	est									New Engla	nd Bioassay
Analysi		13-0336-4959		End	point:		Survival Rat					CETIS V			Sv1.9.4	
Analyze	ed:	31 Oct-19 14:51		Anal	ysis:	Line	Linear Interpolation (ICPIN)					Status L	evel:	1		
Batch II	D:	06-2552-5195		Test	Туре:	Rep	roduction-S	Survival (7d)				Analyst:				
Start Da	ate:	22 Oct-19 14:03		Prot	ocol:	EP/	√821/R-02-	013 (2002)			1	Diluent:	Lab	oratory W	/ater	
Ending	Date:	28 Oct-19 13:20		Spec	cies:	Cer	iodaphnia d	ubia			1	Brine:	Not	Applicab	le	
Test Le	ngth:	5d 23h		Taxo	on:	Bra	nchiopoda					Source:	In-H	House Cul	ture	Age: <24
Sample	iD:	05-6543-1214		Cod	e:		3CBAE				ı	Project:				
Sample	Date:	21 Oct-19 08:22		Mate	erial:	WW	TF Effluent	t				Source:	Pin	e Brook C	ountry Club	(MA003221
Receipt	Date:	21 Oct-19 11:23		CAS	(PC):							Station:				
Sample	Age:	30h		Clie	nt:	Pine	Brook Cou	untry Club								
Linear I	nterpo	lation Options														
X Trans	form	Y Transform		Seed	<u></u>	Res	amples	Exp 95%	CL	Meth	od					
Log(X)		Linear		1322	2695	200		Yes		Two-l	Point In	nterpolation	on			
Point E	stimate	es														
Level	%	95% LCL	95%	UCL	TU		95% LCL	95% UCL				_				
LC50	>100	n/a	n/a		<1		n/a	n/a								
2d Survival Rate Summary								Calcu	late	d Variat	e(A/B)				Isoto	nic Variate
Conc-%	-	Code	Coun	ıt	Mean		Min	Max	Sto	Dev	CV%	%6	Effect	A/B	Mean	%Effect
0		D	10		1.000	0	1.0000	1.0000	0,0	000	0,00%	6 0.0)%	10/10	1	0.0%
6.25			10		0.900	0	0.0000	1.0000	0.3	162	35.14	% 10	.0%	9/10	0.98	2.0%
12.5			10		1.000	0	1.0000	1.0000	0.0	000	0.00%	6 0.0)%	10/10	0.98	2.0%
25			10		1.000	0	1.0000	1.0000	0.0	000	0.00%	6 0.0)%	10/10	0.98	2.0%
50			10		1.000	0	1.0000	1.0000	0.0	000	0.00%	6 0.0)%	10/10	0.98	2.0%
100			10		1.000	0	1.0000	1.0000	0.0	000	0.00%	6 0.0)%	10/10	0.98	2.0%
2d Surv	ival Ra	ate Detail														
Conc-%	1	Code	Rep 1	1	Rep 2	!	Rep 3	Rep 4	Re	p 5	Rep 6	S Re	p 7	Rep 8	Rep 9	Rep 10
0		D	1.000	0	1.000	0	1.0000	1.0000	1.0	000	1.000	0 1.0	0000	1,0000	1.0000	1.0000
6.25			1.000	0	1.000	0	1.0000	1.0000	1.0	000	1.000	0 1.0	0000	0.0000	1.0000	1:0000
12.5			1.000	0	1:000	0	1.0000	1.0000	1.0	000	1.000	0 1:0	0000	1.0000	1.0000	1:0000
25			1.000	10	1.000	0	1.0000	1.0000	1.0	000	1.000	0 1.0	0000	1.0000	1.0000	1.0000
50			1.000	0	1.000	0	1.0000	1.0000	1.0	000	1.000	0 1.0	0000	1.0000	1.0000	1.0000
100			1.000	0	1.000	0	1.0000	1.0000	1,0	000	1,000	0 1,0	0000	1,0000	1.0000	1.0000
2d Surv	ival Ra	ate Binomials														
Conc-%)	Code	Rep 1	1	Rep 2	!	Rep 3	Rep 4	Re	p 5	Rep 6	i Re	р 7	Rep 8	Rep 9	Rep 10
0		D	1/1		1/1		1/1	1/1	1/1		1/1	1/1		1/1	1/1	1/1
6.25			1/1		1/1		1/1	1/1	1/1		1/1	1/1	ı	0/1	1/1	1/1
12.5			1/1		1/1		1/1	1/1	1/1		1/1	1/1	l	1/1	1/1	1/1
25			1/1		1/1		1/1	1/1	1/1		1/1	1/1		1/1	1/1	1/1
50			1/1		1/1		1/1	1/1	1/1		1/1	1/1		1/1	1/1	1/1

000-222-335-4

CETIS™ v1.9.4.1

Analyst:____ QA:___

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Report Date: Test Code/ID: 31 Oct-19 14:52 (p 2 of 6) 19-1508a / 00-2747-3077

Ceriodaphnia 7-d Survival and Reproduction Test

New England Bioassay

Analysis ID: Analyzed:

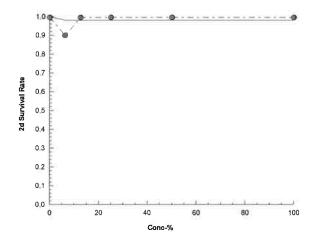
13-0336-4959 31 Oct-19 14:51 Endpoint: 2d Survival Rate Analysis:

Linear Interpolation (ICPIN)

CETIS Version: Status Level: 1

CETISv1.9.4

Graphics



Analyst:_ QA:_

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NEB Issued: 11/14/19

Report Date:

Project:

31 Oct-19 14:52 (p 3 of 6)

Age: <24

				Test Code/ID:	19-1508a / 00-2747-3077
Ceriodaphnia	a 7-d Survival and R	Reproduction Te	est		New England Bioassay
Analysis ID:	18-5122-5858	Endpoint:	6d Survival Rate	CETIS Version:	CETISv1.9.4
Analyzed:	31 Oct-19 14:51	Analysis:	Linear Internolation (ICPIN)	Status Level:	1

Batch ID:06-2552-5195Test Type:Reproduction-Survival (7d)Analyst:Start Date:22 Oct-19 14:03Protocol:EPA/821/R-02-013 (2002)Diluent:Laboratory WaterEnding Date:28 Oct-19 13:20Species:Ceriodaphnia dubiaBrine:Not Applicable

Test Length: 5d 23h Taxon: Branchiopoda Source: In-House Culture

Sample Date: 21 Oct-19 08:22 Material: WWTF Effluent Source: Pine Brook Country Club (MA0032212

Receipt Date: 21 Oct-19 11:23 CAS (PC): Station:
Sample Age: 30h Client: Pine Brook Country Club

21B3CBAE

Code:

Linear Interpolation Options

05-6543-1214

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Log(X)	Linear	1705390	200	Yes	Two-Point Interpolation

Point Estimates

Sample ID:

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
LC50	>100	n/a	n/a	<1	n/a	n/a

6d Survival R	ate Summary					Isotonic Variate					
Conc-%	Code	Count	Mean	Min	Max	Std Dev	CV%	%Effect	A/B	Mean	%Effect
0	D	10	0.9000	0.0000	1,0000	0,3162	35.14%	0.0%	9/10	0.9333	0.0%
6.25		10	0.9000	0.0000	1.0000	0.3162	35.14%	0.0%	9/10	0.9333	0.0%
12.5		10	0.9000	0.0000	1,0000	0.3162	35.14%	0.0%	9/10	0.9333	0.0%
25		10	0.9000	0.0000	1,0000	0.3162	35.14%	0.0%	9/10	0.9333	0.0%
50		10	1.0000	1.0000	1,0000	0.0000	0.00%	-11.11%	10/10	0.9333	0.0%
100		10	1.0000	1.0000	1.0000	0.0000	0.00%	-11_11%	10/10	0.9333	0.0%

6d Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	D	1.0000	1.0000	1.0000	1.0000	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000
6.25		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	1,0000	1.0000
12.5		1.0000	1,0000	1.0000	1.0000	1.0000	0.0000	1.0000	1.0000	1.0000	1.0000
25		1.0000	1.0000	1.0000	1,0000	1,0000	1.0000	1,0000	1.0000	1.0000	0.0000
50		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

6d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	D	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
6.25		1/1	1/1	1/1	1/1	1/1	1/1	1/1	0/1	1/1	1/1
12.5		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
25		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
50		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
100		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1

000-222-335-4 CETIS™ v1.9.4.1 Analyst:____ QA:____

Report Date: Test Code/ID: 31 Oct-19 14:52 (p 4 of 6) 19-1508a / 00-2747-3077

Ceriodaphnia 7-d Survival and Reproduction Test

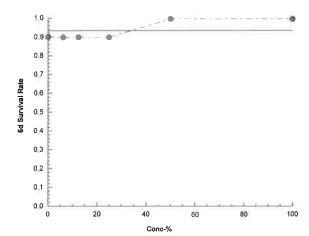
New England Bioassay

Analysis ID: 18-5122-5858 Endpoint: 6d Survival Rate CETIS Version: CETISv1.9.4

Analyzed: 31 Oct-19 14:51 Analysis: Linear Interpolation (ICPIN) Status Level: 1

Graphics

000-222-335-4



CETIS™ v1.9.4.1

Analyst:_____ QA:____

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NEB Issued: 11/14/19

Report Date: Test Code/ID: 31 Oct-19 14:52 (p 1 of 2) 19-1508a / 00-2747-3077

	_	•					Test	Code/ID	8	19-1508a /	00-2747-307
Ceriodaphni	a 7-d Surviva	l and Repr	oduction Te	st						New Engla	nd Bioassay
Analysis ID:	03-7440-640	00	Endpoint:	6d Survival Ra	ate		CET	IS Versio	n: CETIS	1.9.4	
Analyzed:	31 Oct-19 1	4:51	Analysis:	STP 2xK Conf	tingency Tab	les	Stat	us Level:	1		
Batch ID:	06-2552-519	95	Test Type:	Reproduction-	Survival (7d)		Ana	lvst:			
Start Date:	22 Oct-19 1		• •	EPA/821/R-02			Dilu		aboratory Wa	ater	
	: 28 Oct-19 1	3:20		Ceriodaphnia			Brin		ot Applicable		
Test Length:			-	Branchiopoda			Sou		-House Cult		Age: <24
Sample ID:	05-6543-12	14	Code:	21B3CBAE			Proj	ect:			
Sample Date	: 21 Oct-19 0	8:22	Material:	WWTF Efflue	nt		Sou	rce: P	ine Brook Co	untry Club	(MA003221
Receipt Date	: 21 Oct-19 1	1:23	CAS (PC):				Stat	ion:			
Sample Age:	30h		Client:	Pine Brook Co	ountry Club						
Data Transfo	orm	Alt i	łур				NOEL	LOEL	TOEL	TU	
Untransforme	ed	C > T					100	>100	n/a	1	
Fisher Exact	/Bonferroni-l	lolm Test									
Control	vs Grou	р	Test S	tat P-Type	P-Value	Decision	n(a:5%)				
Dilution Wate	r 6.25		0,7632	Exact	1.0000	Non-Sigr	nificant Effec	t			
	12.5		0.7632	Exact	1.0000	Non-Sigr	nificant Effec	t			
	25		0.7632	Exact	1.0000	Non-Sigr	nificant Effec	t			
	50		1.0000	Exact	1.0000	Non-Sigr	nificant Effec	t			
	100		1.0000	Exact	1,0000	Non-Sigr	nificant Effec	t			
Data Summa	ıry										
Conc-%	Code	NR	R	NR + R	Prop NR	Prop R	%Effect				
0	D	9	1	10	0.9	0.1	0.0%				
6.25		9	1	10	0.9	0.1	0.0%				
12.5		9	1	10	0.9	0.1	0.0%				
25		9	1	10	0.9	0.1	0.0%				
50		10	0	10	1	0	-11,11%				
100		10	0	10	1	0	-11.11%				
6d Survival F	Rate Detail										
Conc-%	Code	Rep '		Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	D	1.000	00 1.0000	1.0000	1.0000	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000
6.25		1.000	0 1,0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	1.0000	1,0000
12.5		1.000	00 1.0000	1.0000	1,0000	1.0000	0.0000	1,0000	1.0000	1,0000	1,0000
25		1.000	00 1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0,0000
50		1.000	0 1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.000	00 1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
6d Survival F	Rate Binomia	ls									
Conc-%	Code	Rep '	1 Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	D	1/1	1/1	1/1	1/1	0/1	1/1	1/1	1/1	1/1	1/1
6.25		1/1	1/1	1/1	1/1	1/1	1/1	1/1	0/1	1/1	1/1
12.5		1/1	1/1	1/1	1/1	1/1	0/1	1/1	1/1	1/1	1/1
										4.14	

000-222-335-4 CETIS™ v1.9.4.1 Analyst:_____ QA:____

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25

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100

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Report Date: Test Code/ID: 31 Oct-19 14:52 (p 2 of 2) 19-1508a / 00-2747-3077

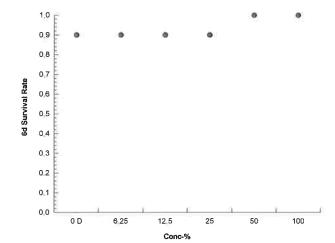
Ceriodaphnia 7-d Survival and Reproduction Test

New England Bioassay

Analysis ID:03-7440-6400Endpoint:6d Survival RateCETIS Version:CETISv1.9.4Analyzed:31 Oct-19 14:51Analysis:STP 2xK Contingency TablesStatus Level:1

Graphics

000-222-335-4



CETIS™ v1.9.4.1

_____ QA:____

Analyst:_

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NEB Issued: 11/14/19

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Report Date: Test Code/ID: 31 Oct-19 14:53 (p 1 of 2) 19-1508a / 00-2747-3077

Ceriodaphnia	7-d Survival an	nd Reprodu	ction Test							N	ew Englan	nd Bioassay
Analysis ID:	02-9814-5618	En	dpoint: Re	production				CETI	S Versio	n: CETISv	1.9.4	
Analyzed:	31 Oct-19 14:53	3 Ana	alysis: No	nparametric-	-Control v	/s T	reatments	Statu	ıs Level:	1		
Batch ID:	06-2552-5195	Tes	t Type: Re	production-S	Survival (7	7d)		Anal	yst:			
Start Date:	22 Oct-19 14:03	3 Pro	tocol: EP	A/821/R-02-	013 (200	2)		Dilue	ent: La	aboratory Wa	ter	
Ending Date:	28 Oct-19 13:20) Spe	ecies: Ce	riodaphnia d	ubia			Brine	e: N	ot Applicable		
Test Length:	5d 23h	Tax	con: Bra	anchiopoda				Sour	rce: In	-House Cultu	re	Age: <24
Sample ID:	05-6543-1214	Co	de: 211	B3CBAE				Proje	ect:			
Sample Date:	21 Oct-19 08:22	2 Ma	terial: WV	NTF Effluent	t			Sour	rce: P	ine Brook Co	untry Club	(MA003221
Receipt Date:	21 Oct-19 11:23	3 CA	S (PC):					Stati	on:			
Sample Age:	30h	Clic	ent: Pin	e Brook Cou	intry Club	o ——						
Data Transfor		Alt Hyp						NOEL	LOEL	TOEL	TU	PMSD
Untransformed	t	C > T						100	>100	n/a	1	28.38%
Steel Many-O	ne Rank Sum T	est										
	vs Conc-%		Test Stat				P-Type	P-Value		n(α:5%)		
Dilution Water	- 00		111.5	75			Asymp	0.9403		nificant Effec		
	12.5		107	75	2		Asymp	0.8746		nificant Effec		
	25		108	75	4		Asymp	0.8923	-	nificant Effec		
	50		122	75	3	18	Asymp	0.9941	-	nificant Effec		
	100		117	75	3	18 ——	Asymp	0.9803	Non-Sig	nificant Effec	л	
Test Acceptal	oility Criteria	TAC I	Limits									
Attribute	Test Stat	Lower	Upper	Overlap	Decision	on						
Control Resp	24.2	15	>>	Yes	Passes	s Cri	iteria					
ANOVA Table	!											
Source	Sum Squ	ares	Mean Squ	Jare	DF		F Stat	P-Value	Decisio	n(α:5%)		
Between	104.483		20.8967		5		0.4643	0.8011	Non-Sig	nificant Effec	;t	
Error	2430.5		45.0093		54							
Total	2534.98				59		=,					
Distributional	Tests											
Attribute	Test				Test St	tat	Critical	D Value	Daninia	on(a:1%)		
						Lat	Critical	P-Value	Decisio			
Variances		quality of Va	ariance Test		6.654	Lat	15.09	0.2477		/ariances		
Variances Distribution	Bartlett Ed	quality of Va Vilk W Norn							Equal \		ion	
Distribution	Bartlett Ed Shapiro-V				6.654		15.09	0.2477	Equal \	ariances	tion	
Distribution Reproduction	Bartlett Ed Shapiro-V			95% LCL	6.654 0.9421		15.09	0.2477	Equal \	ariances	tion	%Effect
Distribution Reproduction Conc-%	Bartlett Ed Shapiro-V n Summary	Vilk W Norn	nality Test		6.654 0.9421		15.09 0.9459	0.2477 0.0067	Equal V Non-No	/ariances rmal Distribut		0.00%
Distribution Reproduction Conc-% 0 6.25	Bartlett Ed Shapiro-V n Summary Code	Count 10 10	Mean 24.2 24	95% LCL	6.654 0.9421 95% U		15.09 0.9459 Median	0.2477 0.0067 Min	Equal V Non-No	Std Err 2.337 2.871	CV%	
Distribution Reproduction Conc-% 0 6.25 12.5	Bartlett Ed Shapiro-V n Summary Code	Vilk W Norn Count 10	Mean 24.2	95% LCL 18.91	6.654 0.9421 95% U 29.49		15.09 0.9459 Median 24	0.2477 0.0067 Min 12	Equal V Non-No Max 35	/ariances rmal Distribut Std Err 2.337	CV% 30.54% 37.83% 27.40%	0.00% 0.83% -2.07%
Distribution Reproduction Conc-% 0 6.25 12.5 25	Bartlett Ed Shapiro-V n Summary Code	Count 10 10 10	Mean 24.2 24 24.7 25.6	95% LCL 18.91 17.5 19.86 20.72	95% UC 29.49 30.5 29.54 30.48		15.09 0.9459 Median 24 25.5 25.5 24	0.2477 0.0067 Min 12 0 10 14	Max 35 33 34 39	Std Err 2.337 2.871 2.14 2.156	CV% 30.54% 37.83% 27.40% 26.63%	0.00% 0.83% -2.07% -5.79%
Distribution Reproduction Conc-% 0 6.25 12.5 25 50	Bartlett Ed Shapiro-V n Summary Code	Count 10 10 10 10 10	Mean 24.2 24 24.7 25.6 27.4	95% LCL 18.91 17.5 19.86 20.72 24.48	95% U0 29.49 30.5 29.54 30.48 30.32		15.09 0.9459 Median 24 25.5 25.5 24 26	0.2477 0.0067 Min 12 0 10 14 22	Max 35 33 34 39 34	Std Err 2.337 2.871 2.14 2.156 1.293	CV% 30.54% 37.83% 27.40% 26.63% 14.92%	0.00% 0.83% -2.07% -5.79% -13.22%
Distribution Reproduction Conc-% 0 6.25 12.5 25 50	Bartlett Ed Shapiro-V n Summary Code	Count 10 10 10	Mean 24.2 24 24.7 25.6	95% LCL 18.91 17.5 19.86 20.72	95% UC 29.49 30.5 29.54 30.48		15.09 0.9459 Median 24 25.5 25.5 24	0.2477 0.0067 Min 12 0 10 14	Max 35 33 34 39	Std Err 2.337 2.871 2.14 2.156	CV% 30.54% 37.83% 27.40% 26.63%	0.00% 0.83% -2.07% -5.79%
Reproduction Conc-% 0 6.25 12.5 25 50 100	Bartlett Ed Shapiro-V n Summary Code D	Count 10 10 10 10 10	Mean 24.2 24 24.7 25.6 27.4	95% LCL 18.91 17.5 19.86 20.72 24.48	95% U0 29.49 30.5 29.54 30.48 30.32		15.09 0.9459 Median 24 25.5 25.5 24 26	0.2477 0.0067 Min 12 0 10 14 22	Max 35 33 34 39 34	Std Err 2.337 2.871 2.14 2.156 1.293	CV% 30.54% 37.83% 27.40% 26.63% 14.92%	0.00% 0.83% -2.07% -5.79% -13.22%
Distribution Reproduction Conc-% 0 6.25 12.5 25 50 100 Reproduction Conc-%	Bartlett Ed Shapiro-V n Summary Code D	Count 10 10 10 10 10 10 10 Rep 1	Mean 24.2 24 24.7 25.6 27.4 27	95% LCL 18.91 17.5 19.86 20.72 24.48 23.5	95% UC 29.49 30.5 29.54 30.48 30.32 30.5		15.09 0.9459 Median 24 25.5 25.5 24 26 26.5	0.2477 0.0067 Min 12 0 10 14 22 19	Max 35 33 34 39 34 37	Std Err 2.337 2.871 2.14 2.156 1.293 1.549	CV% 30.54% 37.83% 27.40% 26.63% 14.92% 18.14%	0.00% 0.83% -2.07% -5.79% -13.22% -11.57%
Distribution Reproduction Conc-% 0 6.25 12.5 25 50 100 Reproduction Conc-% 0	Bartlett Ed Shapiro-V n Summary Code D	Count 10 10 10 10 10 10 10 30	Mean 24.2 24 24.7 25.6 27.4 27	95% LCL 18.91 17.5 19.86 20.72 24.48 23.5 Rep 3	95% U0 29.49 30.5 29.54 30.48 30.32 30.5 Rep 4		15.09 0.9459 Median 24 25.5 25.5 24 26 26.5	0.2477 0.0067 Min 12 0 10 14 22 19 Rep 6	Max 35 33 34 39 34 37 Rep 7	Std Err 2.337 2.871 2.14 2.156 1.293 1.549 Rep 8	CV% 30.54% 37.83% 27.40% 26.63% 14.92% 18.14% Rep 9	0.00% 0.83% -2.07% -5.79% -13.22% -11.57% Rep 10
Distribution Reproduction Conc-% 0 6.25 12.5 25 50 100 Reproduction Conc-% 0 6.25	Bartlett Ed Shapiro-V n Summary Code D	Count 10 10 10 10 10 10 30 28	Mean 24.2 24 24.7 25.6 27.4 27 Rep 2 35 33	95% LCL 18.91 17.5 19.86 20.72 24.48 23.5 Rep 3	95% U0 29.49 30.5 29.54 30.48 30.32 30.5 Rep 4		15.09 0.9459 Median 24 25.5 25.5 24 26 26.5 Rep 5 14 25	0.2477 0.0067 Min 12 0 10 14 22 19 Rep 6 25 27	Max 35 33 34 39 34 37 Rep 7	Std Err 2.337 2.871 2.14 2.156 1.293 1.549 Rep 8 21 0	CV% 30.54% 37.83% 27.40% 26.63% 14.92% 18.14% Rep 9 24 22	0.00% 0.83% -2.07% -5.79% -13.22% -11.57% Rep 10 33 31
Distribution Reproduction Conc-% 0 6.25 12.5 25 50 100 Reproduction Conc-% 0 6.25 12.5	Bartlett Ed Shapiro-V n Summary Code D	Count 10 10 10 10 10 10 10 30	Mean 24.2 24 24.7 25.6 27.4 27 Rep 2 35 33 29	95% LCL 18.91 17.5 19.86 20.72 24.48 23.5 Rep 3	95% U0 29.49 30.5 29.54 30.48 30.32 30.5 Rep 4		15.09 0.9459 Median 24 25.5 25.5 24 26 26.5 Rep 5 14 25 21	0.2477 0.0067 Min 12 0 10 14 22 19 Rep 6 25 27 10	Max 35 33 34 39 34 37 Rep 7	Std Err 2.337 2.871 2.14 2.156 1.293 1.549 Rep 8	CV% 30.54% 37.83% 27.40% 26.63% 14.92% 18.14% Rep 9	0.00% 0.83% -2.07% -5.79% -13.22% -11.57% Rep 10
Distribution Reproduction Conc-% 0 6.25 12.5 25 50 100 Reproduction Conc-% 0 6.25	Bartlett Ed Shapiro-V n Summary Code D	Count 10 10 10 10 10 10 30 28	Mean 24.2 24 24.7 25.6 27.4 27 Rep 2 35 33	95% LCL 18.91 17.5 19.86 20.72 24.48 23.5 Rep 3	95% U0 29.49 30.5 29.54 30.48 30.32 30.5 Rep 4		15.09 0.9459 Median 24 25.5 25.5 24 26 26.5 Rep 5 14 25	0.2477 0.0067 Min 12 0 10 14 22 19 Rep 6 25 27	Max 35 33 34 39 34 37 Rep 7	Std Err 2.337 2.871 2.14 2.156 1.293 1.549 Rep 8 21 0	CV% 30.54% 37.83% 27.40% 26.63% 14.92% 18.14% Rep 9 24 22	0.00% 0.83% -2.07% -5.79% -13.22% -11.57% Rep 10 33 31
Distribution Reproduction Conc-% 0 6.25 12.5 25 50 100 Reproduction Conc-% 0 6.25 12.5	Bartlett Ed Shapiro-V n Summary Code D	Count 10 10 10 10 10 10 30 28 34	Mean 24.2 24 24.7 25.6 27.4 27 Rep 2 35 33 29	95% LCL 18.91 17.5 19.86 20.72 24.48 23.5 Rep 3 24 23 26	95% UC 29.49 30.5 29.54 30.48 30.32 30.5 Rep 4		15.09 0.9459 Median 24 25.5 25.5 24 26 26.5 Rep 5 14 25 21	0.2477 0.0067 Min 12 0 10 14 22 19 Rep 6 25 27 10	Max 35 33 34 39 34 37 Rep 7 24 26 25	Std Err 2.337 2.871 2.14 2.156 1.293 1.549 Rep 8 21 0 20	CV% 30.54% 37.83% 27.40% 26.63% 14.92% 18.14% Rep 9 24 22 23	0.00% 0.83% -2.07% -5.79% -13.22% -11.57% Rep 10 33 31 31

CETIS™ v1.9.4.1 Analyst:_____ QA:____

21 of 85

Report Date: Test Code/ID: 31 Oct-19 14:53 (p 2 of 2) 19-1508a / 00-2747-3077

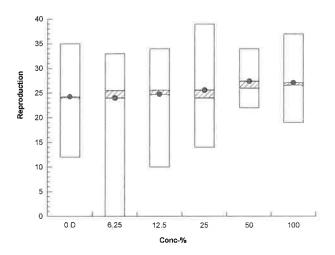
Ceriodaphnia 7-d Survival and Reproduction Test

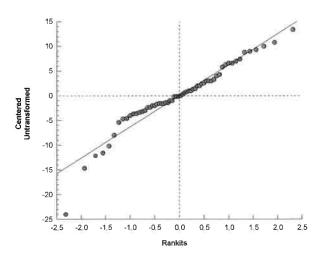
New England Bioassay

Analysis ID: 02-9814-5618 Endpoint: Reproduction CETIS Version: CETISv1.9.4

Analyzed: 31 Oct-19 14:53 Analysis: Nonparametric-Control vs Treatments Status Level: 1

Graphics





Analyst:_____ QA:____

22 of 85

12.5

Report Date:

31 Oct-19 14:53 (p 1 of 2)

									Test C	ode/ID:		19-1508a /	00-2747-307
Ceriod	aphnia	7-d Survival an	d Reproduc	ction To	est						ا	New Engla	nd Bioassay
Analys	is ID:	18-5034-9007	End	point:	Reproduction				CETIS	Version:	CETIS	/1.9.4	
Analyz	ed:	31 Oct-19 14:53	Ana	lysis:	Linear Interpola	tion (ICPII	N)		Status	Level:	1		
Batch	ID:	06-2552-5195	Test	Туре:	Reproduction-S	urvival (7c	d)		Analy	st:			
Start D	ate:	22 Oct-19 14:03	Prot	ocol:	EPA/821/R-02-0	013 (2002))		Diluer	nt: Lab	oratory Wa	ater	
Ending	Date:	28 Oct-19 13:20	Spe	cies:	Ceriodaphnia di	ubia			Brine:	Not	Applicable)	
Test Le	ength:	5d 23h	Taxe	on:	Branchiopoda				Sourc	e: In-H	louse Cult	ure	Age: <24
Sample	e ID:	05-6543-1214	Cod	e:	21B3CBAE				Projec	et:			
Sample	e Date:	21 Oct-19 08:22	Mate	erial:	WWTF Effluent				Sourc	e: Pine	Brook Co	ountry Club	(MA003221
Receip	t Date:	21 Oct-19 11:23	CAS	(PC):					Statio	n:			
Sample	e Age:	30h	Clie	nt:	Pine Brook Cou	intry Club							
Linear	Interpo	olation Options											
X Tran	sform	Y Transform	See	d	Resamples	Exp 95%	% CL N	lethod					
Linear		Linear	7027	725	200	Yes	Т	wo-Point	Interpo	ation			
Test A	cceptal	oility Criteria	TAC L	imits									
Attribu	te	Test Stat	Lower	Uppe	r Overlap	Decision	n						
Control	Resp	24.2	15	>>	Yes	Passes (Criteria						
Point E	Estimat	es											
Level	%	95% LCL	95% UCL	TU	95% LCL	95% UC	L						
IC25	>100	n/a	n/a	<1	n/a	n/a							
IC50	>100	n/a	n/a	<1	n/a	n/a							
Reprod	duction	Summary				C	alculated	Variate				Isoto	nic Variate
Conc-%	6	Code	Count	Mean	Min	Max	Std D	ev CV%	6	%Effect		Mean	%Effect
0		D	10	24.2	12	35	7.391	30.5	4%	0.0%		25.48	0.0%
6.25			10	24	0	33	9.08	37.8	3%	0.83%		25.48	0.0%
12.5			10	24.7	10	34	6.767	27.4	.0%	-2.07%		25.48	0.0%
25			10	25.6	14	39	6.818	26.6	3%	-5.79%		25.48	0.0%
50			10	27.4	22	34	4.088	14.9	2%	-13.22%		25.48	0.0%
100			10	27	19	37	4.899	18.1	4%	-11.57%		25.48	0.0%
Reprod	duction	Detail											
Conc-%	6	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep	6	Rep 7	Rep 8	Rep 9	Rep 10
0		D	30	35	24	12	14	25		24	21	24	33
6.25			28	33	23	25	25	27		26	0	22	31

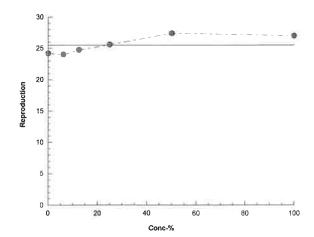
000-222-335-4 CETIS™ v1.9.4.1 Analyst:_____ QA:____

Report Date: Test Code/ID: 31 Oct-19 14:53 (p 2 of 2) 19-1508a / 00-2747-3077

Ceriodaphnia 7-d Survival and Reproduction Test **New England Bioassay**

CETISv1.9.4 Analysis ID: 18-5034-9007 Endpoint: Reproduction **CETIS Version:** Analyzed: 31 Oct-19 14:53 Analysis: Linear Interpolation (ICPIN) Status Level: 1

Graphics



CETIS™ v1.9.4.1 Analyst:_

24 of 85 NEB Issued: 11/14/19

QA:

NEB'S DATA SHEET FOR ROUTINE CHEMICAL AND PHYSICAL DETERMINATIONS

FACILITY NAME & ADDR	ESS:	Pine Brook	Country Clu	b, 42 Newto	on Street, W	eston MA 0	2193	
NEB PROJECT NUMBER:			5.0752101.0		TEST ORGA			odaphnia dubia
DILUTION WATER SOUR			ratory Soft	Water	START DAT	E:	10/22/19	TIME: 1403
ANALYST	LS	BA	СН	LS	ко	ко		
NEB Lab Diluent	1	2	3	4	5	6	7	Remarks
Temp °C Initial	24.7	25.3	25.2	25.0	25.4	25.4		
D.O. mg/L Initial	8.3	8.2	8.4	8.4	8.3	8.3		
pH s.u. Initial	7.5	7.3	7.2	7.4	7.5	7.2		
Conductivity µS Initial	177	175	175	177	177	177		
Temp °C Final	24.1	24.4	24.1	25.1	24.2	24.8		
D.O. mg/L Final	8.3	8.3	8.3	8.5	8.3	8.2		
pH s.u. Final	7.6	7.2	7.3	7.8	7.7	7.2		
Conductivity µS Final	188	194	186	188	201	196		
Pine Brook Control	1	2	3	4	5	6	7	Remarks
Temp °C Initial	25.8	24.7	24.0	24.5	26.0	25.7		
D.O. mg/L Initial	9.1	9.1	9.9	9.3	9.1	8.9		
pH s.u. Initial	7.0	7.1	7.0	7.3	7.3	6.9		
Conductivity µS Initial	351	348	319	321	353	352		
Temp °C Final	24.3	24.5	24.1	25.2	24.4	24.8		
D.O. mg/L Final	8.2	8.2	8.2	8.3	8.2	8.2		
pH s.u. Final	7.6	7.2	7.2	7.7	7.6	7.2		
Conductivity µS Final	366	373	337	334	365	379		
6.25%	1	2	3	4	5	6	7	Remarks
Temp °C Initial	25.0	25.2	25.2	25.1	25.3	25.5		
D.O. mg/L Initial	8.3	8.3	8.3	8.3	8.3	8.2		
pH s.u. Initial	7.2	7.3	7.2	7.5	7.5	7.1		
Conductivity µS Initial	221	220	218	223	222	220		
Temp °C Final	24.3	24.6	24.1	25.3	24.4	25.0		
D.O. mg/L Final	8.2	8.1	8.3	8.3	8.1	8.2		
oH s.u. Final	7.6	7.3	7.3	7.8	7.6	7.2		
Conductivity µS Final	237	238	232	233	239	242		
12.5%	1	2	3	4	5	6	7	Remarks
Temp °C Initial	25.0	25.2	25.2	25.2	25.3	25.6		
D.O. mg/L Initial	8.3	8.2	8.4	8.3	8.3	8.2		
oH s.u. Initial	7.2	7.3	7.2	7.5	7.5	7.2		
Conductivity µS Initial	264	263	264	268	262	258		
remp °C Final	24.3	24.6	24.0	25.3	24.5	24.9		
D.O. mg/L Final	8.2	8.2	8.3	8.3	8.1	8.2		
H s.u. Final	7.6	7.3	7.3	7.8	7.6	7.2		
Conductivity µS Final	277	274	276	275	275	277		

NEB'S DATA SHEET FOR ROUTINE CHEMICAL AND PHYSICAL DETERMINATIONS

FACILITY NAME & ADDR					on Street, We		2193	
NEB PROJECT NUMBER:		0	5.0752101.0	00	TEST ORGA	NISM	Cerio	odaphnia dubia
DILUTION WATER SOUR	CE:	Labo	ratory Soft \	Water	START DAT	E:	10/22/19	TIME: 1403
25%	1	2	3	4	5	6	7	Remarks
Temp °C Initial	25.1	25.2	25.1	25.4	25.2	25.6		
D.O. mg/L Initial	8.3	8.3	8.5	8.3	8.3	8.3		
pH s.u. Initial	7.3	7.4	7.2	7.5	7.5	7,2		
Conductivity µS Initial	352	350	349	350	346	342		
Temp °C Final	24.3	24.5	24.0	25.3	24.4	24.9		
D.O. mg/L Final	8.2	8.2	8.3	8.3	8.2	8.3		
pH s.u. Final	7.6	7.3	7.3	7.8	7.6	7.2		
Conductivity µS Final	365	362	361	362	363	361		
50%	1	2	3	4	5	6	7	Remarks
Temp °C Initial	25.5	25.1	24.7	25.5	25.2	26.0		
D.O. mg/L Initial	8.3	8.4	8.7	8.4	8.4	8.3		
pH s.u. Initial	7.3	7.4	7.2	7.4	7.5	7.2		
Conductivity µS Initial	528	528	529	531	503	507		
Temp °C Final	24.2	24.6	24.0	25.3	24.4	24.9		
D.O. mg/L Final	8.2	8.2	8.3	8.4	8.2	8.3		
pH s.u. Final	7.6	7.4	7.3	7.7	7.6	7.3		
Conductivity µS Final	536	551	542	549	523	539		
100%	1	2	3	4	5	6	7	Remarks
Temp °C Initial	25.8	25.0	24.0	26.0	24.9	26.0		
D.O. mg/L Initial	8.4	8.8	9.4	8.6	8.7	8.5		
pH s.u. Initial	7.3	7.4	7.2	7.4	7.4	7.2		1 10
Conductivity µS Initial	870	866	869	873	825	827		
Temp °C Final	24.2	24.6	24.1	25.3	24.4	24.9		1
D.O. mg/L Final	8.2	8.2	8.3	8.3	8.2	8.3		
oH s.u. Final	7.6	7.4	7.3	7.7	7.6	7.4		
Conductivity µS Final	873	916	883	906	865	860		
		ĺ						
					1			1.

Brood mother source: AR (10.8)

Source's brood size: 18

A-7

(Qty.)

PineBrook 10,22-19

Au Ad AH iMC Tech Att AH KF Date 10.15 10.18 10.20 1021 10-16 10.22 10.16 3 5 6 7 Day 8 9 10 11 12 13 14 acc. Cup# Ti 2(1) Y 19 12 N 1 Ν Ν N 1 23 TZ Y19 N N 2 Ν N N 2 23 VT3 N N 3 Ν Ν 3 Y 15 N N N 4 Ν N 4 123 N N N 5 Ν N 5 21 N 12 N N 6 Ν N 6 213 75 N N N 115 16 7 Ν 7 Ν 26 N 10 N N 13 8 Ν N 8 20 N Y18 12 N N 9 Ν Ν 9 13 18 416 N M 10 N Ν N 10 20 Tq N 13 N 11 Ν N 11 N 416 N N 12 N Ν 12 20 N N N 13 Ν Y = neonates present, and criterion has been met: ≥ 20 neonates produced in total by 3rd brood. N = no neonates **2B** = two broods present. **2Y** = two broods and criterion met: ≥ 20 neos. by 3rd brood. X = brood mother dead ae = aborted eggs ✓ or P = neonates present after renewal on previous day (see time in log). A→ = acceptable for acute testing only T# = neonates used in test, replicate number of test noted (and brood counted). acc. = if acclimated, H₂O type used w/ renewal this day. Test organism collection: Tray diagram used? Project # Symbols (✓ / P) Time period, neonates released (Y/N) Collection date / time T 10-21-19/1700 -> 10-21-19/1850 0752101 10-22-19/1115 Т Т Т Т

Т

Tab	le o	f Ra	ndo	m P	ermuta	tion	s of	16					C.d	ubia	Tes	t ID#		1	19-1	508	а
7	12	15	15	1	2	7	16	10	2	14		.5	7	13	13	10		6	1	8	10
13 3	3 1	8 4	16 5	7 14	10 13	11 3	10 14	13 9	5 13	13 13		7 2	13 9	16 15	7 6	7		5 8	13 4	2 5	14 8
11	8	16	14	15	6	2	6	2	16	8		5	12	3	9	13		4	3	10	4
14	9	1	6	3	9	14	13	8	6	5		8	14	7	3	1		13	11	4	7
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4	6	13	7	2	15	1	9	1	4	7		0	6	9	11	9		7	6	16	11
6 10	14 15	6 2	10 1	4 13	14 12	4 16	15 3	3 4	3 8	4 10		l6 1	2 15	6 5	5 14	1		12 14	10 12	6 3	9 2
12	10	7	12	9	11	9	8	12	14	15		4	11	8	16	8		9	14	14	1
15	7	5	2	10	7	8	12	6	15	6	1	.3	16	12	15	4		11	8	12	6
16	2	11	8	8	8	15	5	16	1	1		9	8	1	8	14		16	5	13	5
9 8	13 11	14 9	3 4	6 11	4 3	10 12	11 7	5 7	12 10	9 12		3 .4	10 3	4 10	4 1	3		10 15	9 16	1 15	3 12
1	5	12	11	16	16	5	4	14	9	16		1	1	2	10	5		1	15	7	13
5	4	3	9	12	1	6	1	15	11	2		6	4	11	2	1:	1	3	7	11	16
11 2	8 2	16 8	5 8	5 14	13 16	1 4	13 3	2 8	16 11	14 10		2	9 15	8 1	7 2	5 1:		13 4	3 5	13 15	3 9
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8	6	3	9	4	10	6	4	16	2	2		9	8	16	4	6		5	15	7	8
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3 16	10 1	11 13	12 14	13 8	12 14	5 15	11 5	7 3	8 7	9 1:		5 .5	14 6	11 12	10 5	1 7		3 11	13 1	3 14	5 4
1	14	14	2	9	15	16	14	6	14	7		8	3	13	11	8		7	7	12	7
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5 12	3 7	5 15	6 15	7 15	7 9	13 8	2 12	14 12	3 13	16 15		4 .0	5 1	5 4	13 6	10		9	16 6	2 11	6 1
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7	9	7	7	11	1	7	16	13	1	13		2	4	2	1	2		12	2	10	14
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16	11	2	1	14	16	6	9	3	4	16		.4	3	15	11	1:		3	9	12	5
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15 14	2 1	3 14	12 6	9 10	12 1	2 3	4 12	13 4	10	3 2		.3 4	14 13	4 3	2 16	1 9		14 9	8	6 7	12 14
13	12	5	11	3	11	15	8	2	7	11		7	8	14	6	4		4	4	15	11
12	5	10	7	2	14	7	15	14	16	13		1	9	10	12	10		11	10	9	8
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2	7	6	2	1	8	10	6	15	12	1		.1	7	11	13	6		1	15	13	15
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15	11	8	9	7	12	8	7	1	15	9		3	3	7	13	1:		10	4	5	1
11	6	6	1	4	1	3	16	12	5	4		9	13	13	6	8		15	9	1	14
4	10	3	16	2	11	7	9	6	9	1		8	4	11	5	2		16	10	12	4
1 9	8 7	1 14	13 2	1 6	15 4	4 14	4 10	11 9	4 8	2 15		.6 .0	5 7	8 10	1 9	9 10		5 6	12 14	16 10	6 11
12	1	9	10	15	4 5	2	15	10	2	14		2	8	2	4	13		8	5	15	5
3	3	12	11	5	9	6	6	3	10	13		.2	9	6	2	1!		7	15	7	13
10	15	11	5	13	7	12	5	2	7	11		5	10	15	12	3		1	13	13	10
8	13	13	3	3	10	13	2	4	1	8		6	11	14	15	6		9	16	2	2
16	16	5	12	11	6	1	3	8	16	3		7	2	5	16	14	+	13	7	14	15

PIMEPHALES PROMELAS DATASHEETS & STATISTICAL ANALYSIS

NEW ENGLAND BIOASSAY TOXICITY DATA FORM CHRONIC COVER SHEET

CLIENT:	Pine Brook Country Club	P.promelas TEST ID #	19-1508b
ADDRESS:	42 Newton Street	CHAIN OF CUSTODY #	C39-3895/96
	Weston, MA 02193	NEB PROJECT #	05.0752101.00
PERMITTEE:	Pine Brook Country Club	SAMPLE ID:	Effluent
PERMIT NUMBER:	MA0032212		
DILUTION WATER:	Laboratory Soft Water	-	

VERTEBRATES

TEST SET-UP TECHNICIAN:	LS
TEST SPECIES:	Pimephales promelas
NEB LOT #	Pp(10-22)
AGE:	< 24 hours
TEST SOLUTION VOLUME (mls):	400
ORGANISMS PER TEST CHAMBER:	10
ORGANISMS PER CONCENTRATION:	40

LABORATORY CONTROL WATER (SRCF)

Lot Number	Hardness mg/L	Alkalinity mg/L
C39-S025	46	30

	DATE	TIME
TEST START:	10/22/19	1335
TEST END:	10/29/19	1315

COMMENTS:		
REVIEWED BY:	DATE:	11/13/19
		ί. ,

NEB'S SURVIVAL DATA SHEET FOR FATHEAD MINNOW LARVAL SURVIVAL AND GROWTH TEST

FACILITY NAME &	ADDRESS:	Pin	e Brook	Country	Club, 42 Nev	vton Street, Wes	ton MA C	2193
NEB PROJECT NUI	MBER:	05.0752101.00 TEST NUMBER:				19-1508b	COC#	C39-3895/96
TEST ORGANISM:	Pimephai	es promela	s	AGE:	<24 hoເ	ırs Lot#	Pp((10-22)
START DATE:	10/22/19	TIME:	1335	END	DATE:	10/29/19	TIME:	1315

					Nur	mber of Si	urvivors			
Effluent Concentration	Replicate Number					Day				
Concentration	, rumber	0	1	2	3	4	5	6	7	Remarks
	ANALYST	LS	ВА	CH	LS	PD	ко	CW	LS	
	А	10	10	10	10	10	10	10	10	
NEB Lab Synthetic	В	10	10	10	10	10	10	10	10	
Diluent	С	10	10	10	10	10	10	10	10	
	D	10	10	10	10	10	10	10	10	
	Α	10	10	10	9	9	9	9	9	
Pine Brook	В	10	10	9	2	0	0	0	0	
Control	С	10	10	10	10	10	10	10	10	
	D	10	10	10	10	10	10	10	10	
	Α	10	10	10	10	10	10	10	10	
6.25%	В	10	10	10	10	10	10	10	10	
0.23%	С	10	10	10	10	9	9	9	9	
	D	10	10	10	10	10	10	10	10	
	Α	10	10	10	10	10	10	10	10	
12.5%	В	10	10	10	10	10	10	10	10	
12.5%	С	10	10	10	10	10	10	10	10	
	D	10	10	10	10	10	10	10	10	
	Α	10	10	10	10	10	10	10	10	
25%	В	10	10	10	10	10	10	10	10	
25%	С	10	10	10	10	10	10	10	10	
	D	10	10	10	10	10	10	10	10	
	Α	10	10	10	10	10	10	10	10	
E00/	В	10	10	10	10	10	10	10	10	
50%	С	10	10	10	10	10	10	10	10	
	D	10	10	10	10	10	10	10	10	
	Α	10	10	10	10	10	10	10	10	
1000/	В	10	10	10	10	10	10	10	10	
100%	С	10	10	10	10	10	10	10	10	
	D	10	10	10	10	10	9	9	9	

D.O. concentration fell below 4.0 mg/L, all concentrations were aerated at <100 bubbles/minute as of:

NEW ENGLAND BIOASSAY OBSERVATION DATA FORM

Project # 05.0752101.00 Test ID: 19-1508b Rep D: All organisms appear healthy and normal unless noted Pimephales promelas 끙 \sim 10/22/19 Technician: Technician: Rep C: 10/24/19 10/25/19 Test Species: Test Date: Date: Date: Rep B: Observations Observations Pine Brook Country Club ന Day Day Rep A: **Brook Control Brook Control** Concentration Lab Diluent Lab Diluent Permittee: or Dilution 6.25% 6.25% 12.5% 12.5% 100% 100% 25% 20% 25% 20%

F= fungus NF = no fungus SL = slightly lethargic L = lethargic VL = very lethargic TD = tangled in debris MT = missing test organism TE = technician error (organism accidentally killed by technician) SS = stuck in surface tension DW = dead above water line

NEW ENGLAND BIOASSAY OBSERVATION DATA FORM

Test ID: 19-1508b Project # 05.0752101.00			Rep D:	Rep D:	Rep D:	Rep D:	Rep D:	Rep D:	Rep D:		Rep D:	Rep D:	Rep D:	Rep D:	Rep D:	Rep D:	Rep D:	
Pimephales promelas 10/22/19	al unless noted	n: PD			ΤM					n:								
Pimepha 10	y and norm	Technician:	Rep C:	Rep C:	Rep C:	Rep C:	Rep C:	Rep C:	Rep C:	Technician:	Rep C:	Rep C:	Rep C:	Rep C:	Rep C:	Rep C:	Rep C:	
Test Species: Test Date:	All organisms appear healthy and normal unless noted	Date: 10/26/19		щ						te:								
	All organism		Rep B:	Rep B:	Rep B:	Rep B:	Rep B:	Rep B:	Rep B:	ns Date:	Rep B:	Rep B:	Rep B:	Rep B:	Rep B:	Rep B:	Rep B:	
ıntry Club		4 Observations								Observations								
Pine Brook Country Club		Day	Rep A:	Rep A:	Rep A:	Rep A:	Rep A:	Rep A:	Rep A:	Day	Rep A:	Rep A:	Rep A:	Rep A:	Rep A:	Rep A:	Rep A:	
Permittee:	Concentration or Dilution		Lab Diluent	Brook Control	6.25% F	12.5% F	25%	50% F	100%		Lab Diluent	Brook Control	6.25%	12.5%	25%	20%	100%	

F= fungus NF = no fungus SL = slightly lethargic L = lethargic VL = very lethargic TD = tangled in debris MT = missing test organism TE = technician error (organism accidentally killed by technician) SS = stuck in surface tension DW = dead above water line

NEW ENGLAND BIOASSAY WEIGHT DATA FOR FATHEAD MINNOW LARVAL SURVIVAL AND GROWTH TEST

FACILITY NAME & ADDRESS:	Pine Brook	Country Club, 42 Newton Str	eet, Weston MA 02193		
NEB PROJECT #	05.0752101.00	NEB TEST NUMBER:	19-1508b		
TEST START DATE	10/22/19	WEIGHING DATE:	11/13/19		
TEST END DATE	10/29/19				
DRYING TEMPERATURE (°C)	100 ± 4	DRYING TIME:	minimum 6 hours		
ANALYST-INITIAL WEIGHTS	ВА	ANALYST-FINAL WEIGHTS	МС		
		Α	В		
Effluent Concentration	Replicate Number	Weight of boat (mg)	Dry Weight: Foil and Larvae (mg)		
	Α	931.07	936.51		
NEB Lab Synthetic Diluent	В	937.06	941.39		
,	С	939.51	944.48		
	D	931.92	937.05		
	Α	916.37	920.72		
Pine Brook Control	В	927.85	N/A		
Fille Blook Collition	С	917.71	922.37		
	D	915.38	920.48		
	А	934.52	939.59		
	В	935.20	940.49		
6.25%	С	929.38	934.76		
	D	927.75	932.86		
	Α	927.26	932.56		
40.504	В	924.97	930.41		
12.5%	С	926.30	931.40		
	D	930.83	936.24		
	Α	925.17	929.91		
	В	917.60	922.48		
25%	C	919.72	925.02		
	D	934.97	940.20		
	A	929.52	935.15		
	В	928.91	933.29		
50%	C	930.25	935.61		
	D	927.08	932.23		
	A	924.12	929.41		
	В	923.66	929.07		
100%	C	919.68			
	D	921.28	925.11 926.55		
	, , , , , , , , , , , , , , , , , , ,	321.20	320.33		

Report Date:

13 Nov-19 13:22 (p 1 of 6)

CETIS	S Ana	llytical Repo	ort						eport Date: st Code/ID:			3:22 (p 1 of 6) 15-5205-725(
Fathea	d Minn	ow 7-d Larval S	urvival and	Growt	th Test							ınd Bioassay
Analysis ID: 10-3864-0679 Endp				point:	2d Survival Rat	e		CE	TIS Version	CETIS	/1.9.4	
Analyz	ed:	13 Nov-19 13:21	1 Ana	lysis:	Linear Interpola	ation (ICPIN)	St	atus Level:	1		
Batch I	D:	08-3155-4291	Test	Туре:	Growth-Surviva	ıl (7d)		Ar	alyst:			
Start D	ate:	22 Oct-19 13:35	Prot	ocol:	EPA/821/R-02-	013 (2002)		Di	luent: Lal	oratory Wa	ater	
Ending	Date:	29 Oct-19 13:15	Spe	cies:	Pimephales pro	omelas		Br	ine: No	t Applicable)	
Test Le	ength:	7d	Taxe	on:	Actinopterygii			Sc	ource: In-l	House Cult	ure	Age: <24
Sample	D:	07-5262-7935	Cod	e:	2CDC30DF			Pr	oject:			
Sample	Date:	21 Oct-19 08:22	. Mate	erial:	WWTF Effluen	t		Sc	ource: Pin	e Brook Co	ountry Club	(MA003221
Receip	t Date:	21 Oct-19 11:23	CAS	(PC):				St	ation:			
Sample	Age:	29h	Clie	nt:	Pine Brook Co	untry Club						
Linear	Interpo	olation Options										
X Trans	sform	Y Transform	n Seed	d	Resamples	Exp 95%	CL Met	nod				
Log(X)		Linear	2274	145	200	Yes	Two	-Point Inte	rpolation			
Point E	stimat	es										
Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL						
LC50	>100	n/a	n/a	<1	n/a	n/a						
2d Sur	vival R	ate Summary				Calcu	ılated Varia	ite(A/B)			Isoto	onic Variate
Conc-%	6	Code	Count	Mean	Min	Max	Std Dev	CV%	%Effect	A/B	Mean	%Effect
0		D	4	1.000		1.0000	0.0000	0.00%	0.0%	40/40	1	0.0%
6.25			4	1.000		1.0000	0.0000	0.00%	0.0%	40/40	1	0.0%
12.5			4	1,000	0 1.0000	1.0000	0.0000	0.00%	0.0%	40/40	1	0.0%
25			4	1.000		1,0000	0.0000	0.00%	0.0%	40/40	1	0.0%
50			4	1.000		1.0000	0.0000	0.00%	0.0%	40/40	1	0.0%
100			4	1.000	0 1.0000	1,0000	0.0000	0.00%	0.0%	40/40	1	0.0%
2d Sur	vival R	ate Detail										
Conc-%	6	Code	Rep 1	Rep 2	Rep 3	Rep 4						
0		D	1.0000	1.000	0 1.0000	1.0000						
6.25			1.0000	1.000	0 1.0000	1.0000						
12.5			1.0000	1.000	0 1.0000	1.0000						
25			1.0000	1.000	0 1.0000	1.0000						
50			1.0000	1.000	0 1.0000	1.0000						
100			1,0000	1.000	0 1.0000	1.0000						
2d Surv	/ival R	ate Binomials										
Conc-%	, D	Code	Rep 1	Rep 2	Rep 3	Rep 4						
0		D	10/10	10/10		10/10						
6.25			10/10	10/10	10/10	10/10						
40 =												

000-222-335-4

12.5

25

50

100

10/10

10/10

10/10

10/10

10/10

10/10

10/10

10/10

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10/10

10/10

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10/10

CETIS™ v1.9.4.1

Analyst:_____ QA:____

35 of 85

Report Date: Test Code/ID: 13 Nov-19 13:22 (p 2 of 6) 19-1508b / 15-5205-7250

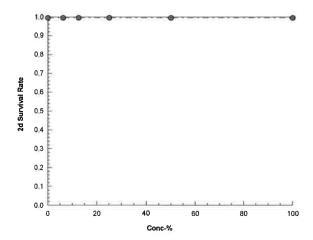
Fathead Minnow 7-d Larval Survival and Growth Test

New England Bioassay

Analysis ID: 10-3864-0679 Endpoint: 2d Survival Rate CETIS Version: CETISv1.9.4

Analyzed: 13 Nov-19 13:21 Analysis: Linear Interpolation (ICPIN) Status Level: 1

Graphics



000-222-335-4 CETIS™ v1.9.4.1 Analyst:_____ QA:____

Report Date: Test Code/ID: 13 Nov-19 13:22 (p 3 of 6) 19-1508b / 15-5205-7250

							Т	est Code/I	D:		19-1508b /	15-5205-725
Fathead Minr	now 7-d Larval Si	urvival and	Growt	h Test						ı	New Engla	nd Bioassay
Analysis ID:	05-6497-3641	End	point:	7d Survival Rat	te			ETIS Vers	ion:	CETISV	1.9.4	
Analyzed:	13 Nov-19 13:22		lysis:	Linear Interpola	ation (ICPIN)	S	Status Leve	el:	1		
Batch ID:	08-3155-4291	Test	Type:	Growth-Surviva	al (7d)		Δ.	nalyst:				
Start Date:	22 Oct-19 13:35		ocol:	EPA/821/R-02-				•	Labo	ratory Wa	iter	
	29 Oct-19 13:15		cies:	Pimephales pro	, ,					Applicable		
Test Length:		Taxo		Actinopterygii			S			ouse Culti		Age: <24
Sample ID:	07-5262-7935	Cod	e :	2CDC30DF			F	Project:				
Sample Date:	: 21 Oct-19 08:22	Mate	erial:	WWTF Effluen	t		S	Source:	Pine	Brook Co	untry Club	(MA003221
-	: 21 Oct-19 11:23	CAS	(PC):				S	Station:				
Sample Age:	29h	Clie	nt:	Pine Brook Co	untry Club							
Linear Interp	olation Options											
X Transform	Y Transform			Resamples	Exp 95%							
Log(X)	Linear	3627	717	200	Yes	Two	-Point In	terpolation				
Test Accepta	bility Criteria	TAC L	imits									
Attribute	Test Stat	Lower	Uppe		Decision							
Control Resp	1	8.0	>>	Yes	Passes C	riteria						
Point Estima	tes											
Level %	95% LCL	95% UCL	TU	95% LCL	95% UCL							
LC50 >100) n/a	n/a	<1	n/a	n/a							
7d Survival R	tate Summary				Calcu	ılated Varia	ate(A/B)				Isoto	onic Variate
Conc-%	Code	Count	Mean	Min	Max	Std Dev	CV%	%Effe	ect	A/B	Mean	%Effect
0	D	4	1.000		1,0000	0.0000	0.00%	0.0%		40/40	1	0.0%
6.25		4	0.975		1.0000	0.0500	5.13%			39/40	0.9937	0.63%
12.5		4	1.000		1.0000	0.0000	0.00%			40/40	0.9937	0.63%
25		4	1.000		1.0000	0.0000	0.00%			40/40	0.9937	0.63%
50		4	1.000		1.0000	0.0000	0.00%			40/40	0.9937	0.63%
100		4	0.975	0 0.9000	1.0000	0.0500	5.13%	2.5%		39/40	0.975	2.5%
7d Survival R	tate Detail											
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4							
0	D	1.0000	1.000	0 1.0000	1.0000							
6.25		1.0000	1.000	0.9000	1.0000							
12.5		1.0000	1.000	0 1.0000	1.0000							
25		1.0000	1.000	0 1.0000	1.0000							
50		1.0000	1.000	0 1.0000	1.0000							
100		1.0000	1.000	0 1.0000	0.9000							
7d Survival R	late Binomials											
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4							
0	D	10/10	10/10	10/10	10/10							
6.25		10/10	10/10	10/10	10/10							
12.5		10/10	10/10	10/10	10/10							
25		10/10	10/10	10/10	10/10							
50		10/10	10/10	10/10	10/10							
100		10/10	10/10	10/10	10/10							

000-222-335-4

CETIS™ v1.9.4.1

Analyst:_____ QA:____

Report Date:

13 Nov-19 13:22 (p 4 of 6)

Test Code/ID:

19-1508b / 15-5205-7250

Fathead Minnow 7-d Larval Survival and Growth Test

New England Bioassay

Analyzed:

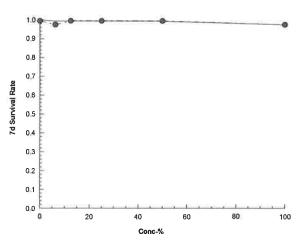
Analysis ID: 05-6497-3641 13 Nov-19 13:22

Endpoint: 7d Survival Rate Analysis: Linear Interpolation (ICPIN) **CETIS Version:** Status Level:

CETISv1.9.4

1

Graphics



000-222-335-4

CETIS™ v1.9.4:1

Analyst:_ QA:

Report Date: Test Code/ID: 13 Nov-19 13:22 (p 5 of 6) 19-1508b / 15-5205-7250

											Test Code	/ID:		19-15	608b /	15-5205-725
Fathea	d Minn	now 7-d Larval Si	urvival and	Growt	h Te	st								New	Engla	nd Bioassay
Analys	is ID:	11-4088-9154	End	point:	Mea	an Dry Bioma	ass-mg				CETIS Ver	sion:	CET	ISv1.9.4		
Analyz	ed:	13 Nov-19 13:22	Ana	ysis:	Line	ear Interpolat	tion (ICPIN)			Status Lev	vel:	1			
Batch	ID:	08-3155-4291	Test	Туре:	Gro	wth-Survival	(7d)				Analyst:					
Start D	ate:	22 Oct-19 13:35	Prot	ocol:	EP/	4/821/R-02-0	13 (2002)				Diluent:	Labo	ratory	Water		
Ending	Date:	29 Oct-19 13:15	Spe	cies:	Pim	ephales pro	melas				Brine:	Not /	Applica	ble		
Test Le	ength:	7d	Taxo	on:	Act	inopterygii				,	Source:	In-H	ouse C	ulture		Age: <24
Sample	e ID:	07-5262-7935	Cod	e:	2CI	C30DF					Project:					
-		21 Oct-19 08:22	Mate	erial:	W۷	VTF Effluent					Source:	Pine	Brook	Country	Club	(MA003221
Receip	t Date:	21 Oct-19 11:23	CAS	(PC):							Station:					
Sample	e Age:	29h	Clie	nt:	Pin	e Brook Cou	ntry Club									
Linear	Interpo	olation Options														
X Tran	sform	Y Transform	See	d	Res	samples	Exp 95%	CL	Meth	od						
Linear		Linear	5910	24	200	1	Yes		Two-l	Point Ir	nterpolation	n				
Test A	cceptal	bility Criteria	TAC L	imite												
Attribu	ite	Test Stat		Uppe	r	Overlap	Decision									
Control		0.4967	0.25	>>		Yes	Passes C									
Point E	Estimat	tes														
Level	%	95% LCL	95% UCL	TU		95% LCL	95% UCL									
IC25	>100	n/a	n/a	<1		n/a	n/a									
IC50	>100	n/a	n/a	<1		n/a	n/a									
Mean (Ory Bio	mass-mg Summ	ary				Ca	lculate	ed Var	riate					Isoto	nic Variate
Conc-9		Code	Count	Mean		Min	Max	Std	Dev	CV%	%E1	ffect		N	lean	%Effect
0		D	4	0.496		0.433	0.544	0.04		9.419				0	.5168	0.0%
6.25			4	0.521	2	0.507	0.538	0.01	471	2.829	6 -4.9	3%		0	.5168	0.0%
12.5			4	0.531	3	0.51	0.544	0.01	539	2.90%	% -6.9	5%		0	.5168	0.0%
25			4	0.503	8	0.474	0.53	0.02	704	5.379	6 -1.4	1%		0	.5168	0.0%
50			4	0.513		0.438	0.563	0.05	372	10.47	' % -3.2	7%		0	.5168	0.0%
100			4	0.535		0.527	0.543	0.00	8167	1.539	6 -7.7	%		0	.5168	0.0%
Mean [Ory Bio	mass-mg Detail														
Conc-9	%	Code	Rep 1	Rep 2	2	Rep 3	Rep 4									
0		D	0.544	0.433		0.497	0.513									
6.25			0.507	0.529		0.538	0.511									
12.5			0.53	0.544		0.51	0.541									
				5.517		3.0.										

Analyst:_____ QA:____

25

50

100

0.474

0.563

0.529

0.488

0.438

0.541

0.53

0.536

0.543

0.523

0.515

0.527

Report Date: Test Code/ID: 13 Nov-19 13:22 (p 6 of 6) 19-1508b / 15-5205-7250

Fathead Minnow 7-d Larval Survival and Growth Test

New England Bioassay

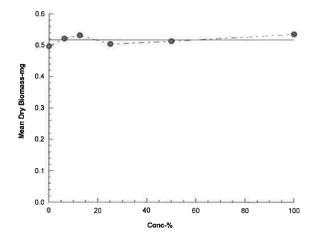
Analysis ID: 11-4088-9154 **Analyzed:** 13 Nov-19 13:22

Endpoint: Mean Dry Biomass-mg **Analysis:** Linear Interpolation (ICPIN)

CETIS Version: CETISv1.9.4

Status Level: 1

Graphics



000-222-335-4

CETIS™ v1.9.4.1

Analyst:_____ QA:____

Report Date: Test Code/ID:

13 Nov-19 13:22 (p 1 of 4) 19-1508b / 15-5205-7250

									163	Codenia	<i>,</i> .		9-130007	10-0200-72	
Fathead Minn	now 7-d Larval S	Survival ar	nd Growt	h Te	st							N	ew Engla	nd Bioassa	
Analysis ID:	20-5987-5108	Er	dpoint:	7d S	Survival Ra	te			CE.	TIS Version	on:	CETISv1	.9.4		
Analyzed:	13 Nov-19 13:2	2 A r	alysis:	Non	parametric	-Control v	s T	reatments	Sta	tus Level	:	1			
Batch ID:	08-3155-4291	Te	st Type:	Gro	wth-Surviva	al (7d)			Ana	alyst:					
Start Date:	22 Oct-19 13:35		otocol:		V821/R-02-	-013 (2002	2)		Dilu	ıent: L	_abo	ratory Wat	er		
Ending Date:	29 Oct-19 13:15	5 Sp	ecies:	Pim	ephales pro	omelas			Brit	ne: N	Not A	pplicable			
Test Length:	7d	Ta	xon:	Acti	nopterygii				Sou	ırce: l	n-Ho	use Cultui	re	Age: <	
Sample ID:	07-5262-7935	Co	de:	2CE	C30DF				Pro	ject:					
	21 Oct-19 08:22	2 Ma	aterial:	ww	/TF Effluen	t				-	Pine	Brook Cou	intry Club	(MA00322	
Receipt Date:	21 Oct-19 11:23	S CA	S (PC):						Sta	tion:			ŕ	`	
Sample Age:	29h		ient:	Pine	Brook Co	untry Club)								
Data Transfor	rm	Alt Hyp							NOEL	LOEL		TOEL	TU	PMSD	
Angular (Corre	ected)	C > T							100	>100		n/a	1	5.60%	
Steel Many-O	ne Rank Sum To	est													
_	vs Conc-%		Test S	Stat	Critical	Ties	DF	P-Type	P-Value	Decisi	onto	:5%)			
Dilution Water			16		10		<u></u> 6	Asymp	0.6105		<u> </u>	cant Effec	t		
	12.5		18		10		6	Asymp	0.8333		-	cant Effec			
	25		18		10		6	Asymp	0.8333		_	cant Effec			
	50		18		10	1	6	Asymp	0.8333		-	cant Effec			
	100		16		10	1 (6	Asymp	0.6105		_	cant Effec			
Test Acceptat	bility Criteria	TAC	Limits												
Attribute	Test Stat		Uppei	r	Overlap	Decisio	n								
Control Resp	1	0.8	>>		Yes	Passes	Cr	iteria							
ANOVA Table															
Source	Sum Squ	ares	Mean	n Square DF				F Stat	P-Value	Decisi	on(a	:5%)			
Between	0.0088531		0.0017			5		0.8	0.5640		<u> </u>	cant Effect			
Error	0.039839		0.0022	2133		18					•				
Total	0.0486921					23		-							
Distributional	Tests														
Attribute	Test					Test Sta	at	Critical	P-Value	Decision	on(a	:1%)			
Variances	Levene Ed	uality of V	ariance T	est		7.2		4.248	7.3E-04			riances			
Variances	Mod Leve	ne Equality	of Varia	nce T	Γest	8.0		4.248	0.5640	Equal \	Varia	inces			
Distribution	Shapiro-W	/ilk W Norr	nality Tes	st		0.6154		0.884	9.2E-07	Non-No	orma	ıl Distributi	on		
7d Survival R	ate Summary														
Conc-%	Code	Count	Mean		95% LCL	95% UC	L	Median	Min	Max		Std Err	CV%	%Effect	
)	D	4	1.0000)	1.0000	1.0000		1.0000	1.0000	1.0000		0.0000	0.00%	0.00%	
6.25		4	0.9750)	0.8954	1.0000		1.0000	0.9000	1.0000		0.0250	5.13%	2.50%	
12.5		4	1.0000	כ	1.0000	1.0000		1.0000	1.0000	1.0000		0.0000	0.00%	0.00%	
25		4	1.0000)	1.0000	1.0000		1.0000	1.0000	1.0000		0.0000	0.00%	0.00%	
50		4	1.0000)	1.0000	1.0000		1.0000	1.0000	1.0000		0.0000	0.00%	0.00%	
100		4	0.9750)	0.8954	1.0000		1.0000	0.9000	1.0000		0.0250	5.13%	2.50%	
Angular (Corr	ected) Transfor	med Sumi	mary												
Conc-%	Code	Count	Mean		95% LCL	95% UC	L	Median	Min	Max		Std Err	CV%	%Effect	
)	D	4	1.412		1.412	1.412		1.412	1.412	1.412		0	0.00%	0.00%	
6.25		4	1.371		1.242	1.501		1.412	1.249	1.412		0.04074	5.94%	2.89%	
12.5		4	1.412		1.412	1.412		1.412	1.412	1.412		0	0.00%	0.00%	
25		4	1.412		1.412	1.412		1.412	1.412	1.412		0	0.00%	0.00%	
50		4	1.412		1.412	1.412		1.412	1.412	1.412		0	0.00%	0.00%	
100		4	1.371		1.242	1.501		1.412	1.249	1.412		0.04074	5.94%	2.89%	

000-222-335-4

CETIS™ v1.9.4.1

Analyst:_____ QA:____

Report Date: Test Code/ID: 13 Nov-19 13:22 (p 2 of 4) 19-1508b / 15-5205-7250

Fathead Minnow 7-d Larval Survival and Growth Test

New England Bioassay

Analysis ID: 20-5987-5108 Analyzed: 13 Nov-19 13:22 Endpoint: 7d Survival Rate Analysis: Nonparametric-Control vs Treatments **CETIS Version:**

CETISv1.9.4 Status Level: 1

7d Survival Rate Detail	7d Surviva	Rate	Detail
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Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	1.0000	1.0000	1.0000	1.0000
6.25		1.0000	1.0000	0.9000	1.0000
12,5		1.0000	1.0000	1.0000	1.0000
25		1.0000	1.0000	1.0000	1.0000
50		1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	0.9000

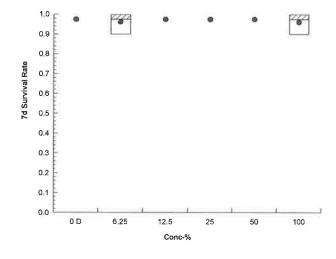
Angular (Corrected) Transformed Detail

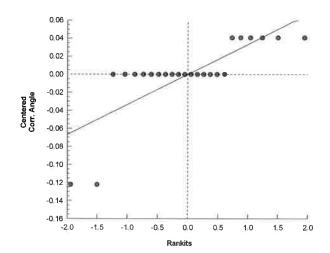
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	1.412	1.412	1.412	1.412
6.25		1.412	1.412	1.249	1.412
12.5		1.412	1.412	1.412	1.412
25		1.412	1.412	1.412	1.412
50		1.412	1.412	1.412	1.412
100		1,412	1.412	1.412	1.249

7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	10/10	10/10	10/10	10/10
6.25		10/10	10/10	9/10	10/10
12.5		10/10	10/10	10/10	10/10
25		10/10	10/10	10/10	10/10
50		10/10	10/10	10/10	10/10
100		10/10	10/10	10/10	9/10

Graphics





000-222-335-4

CETIS™ v1.9,4.1

QA: Analyst:_

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NEB Issued: 11/14/19

Report Date: Test Code/ID:

13 Nov-19 13:22 (p 3 of 4) 19-1508b / 15-5205-7250

Fathead Minr	now 7-d Larval S	Survival ar	nd Growth T	est					Ne	ew Engla	nd Bioassay
Analysis ID: Analyzed:	18-9170-8476 13 Nov-19 13:2		•	ean Dry Bion arametric-Co	_	tments		IS Versio		.9.4	
Batch ID:	08-3155-4291	To	et Type: Gi	rowth-Surviva	al (7d)		Anal	lvet:			
Start Date:	22 Oct-19 13:3		= -	PA/821/R-02-			Dilu	-	aboratory Wate	ar	
	29 Oct-19 13:1			mephales pro	` '		Brin		aboratory vvati lot Applicable	51	
Test Length:		•		riiephales pro stinopterygii	Difficias		Sou		iot Applicable 1-House Cultur	_	Age: <24
									i-i louse Cultur		Age. <2
Sample ID:	07-5262-7935			DC30DF			Proj				
	21 Oct-19 08:2			WTF Effluen	t		Source: Pine Brook Country Club				(MA003221
•	21 Oct-19 11:2:		AS (PC):				Stati	ion:			
Sample Age:	29h	CI	ient: Pi	ne Brook Co	untry Club						
Data Transfor		Alt Hyp					NOEL	LOEL	TOEL	TU	PMSD
Untransformed	<u> </u>	C > T					100	>100	n/a	1	11.12%
Dunnett Multi	ple Compariso	n Test									
	vs Conc-%		Test Stat			P-Type	P-Value	Decisio	on(α:5%)		
Dilution Water			-1.067	2,407	0.055 6	CDF	0.9856		gnificant Effect		
	12.5		-1.503	2.407	0.055 6	CDF	0.9959		gnificant Effect		
	25		-0.305	2.407	0.055 6	CDF	0.9075		gnificant Effect		
	50		-0.7078	2.407	0.055 6	CDF	0.9632		gnificant Effect		
	100		-1.666	2.407	0.055 6	CDF	0.9975	Non-Si	gnificant Effect		
Test Acceptal	bility Criteria	TAC	Limits								
Attribute	Test Stat	Lower	Upper	Overlap	Decision						
Control Resp	0.4967	0.25	>>	Yes	Passes C	riteria					
ANOVA Table											
Source	Sum Squ	ares	Mean Sq	n Square DF F Stat			P-Value	Decisio	on(α:5%)		
Between	0.004500	^	0.000047	2	5	0.8703	0.5201	Non-Sig	nificant Effect		
	0.004586	U	0.000917	_	5	0.0700	0.5201				
	0.004586		0.000917		18	0.0700	0.5201				
		1			_		0.5201		,		
Error Total	0.018971 0.023557	1			18	=	0.5201				
Error Total Distributional	0.018971 0.023557	1			18	- :	P-Value				
Error Total Distributional Attribute	0.018971 0.023557 Tests Test	1			18 23	- :		Decisio	on(α:1%) ⁄ariances		
Error Total Distributional Attribute Variances	0.018971 0.023557 Tests Test Bartlett Ed	1 1 quality of V	0.001054		18 23 Test Stat	Critical	P-Value	Decision Equal V	on(α:1%)		
Error Total Distributional Attribute Variances Distribution	0.018971 0.023557 Tests Test Bartlett Ed	1 1 quality of V Vilk W Nori	0.001054 ariance Test		18 23 Test Stat 11.86	Critical	P-Value 0.0368	Decision Equal V	on(α:1%) ⁄ariances		
Error Total Distributional Attribute Variances Distribution Mean Dry Bio	0.018971 0.023557 Tests Test Bartlett Ed Shapiro-V	1 1 quality of V Vilk W Nori	0.001054 ariance Test		18 23 Test Stat 11.86 0.9298	Critical 15.09 0.884	P-Value 0.0368	Decision Equal V	on(α:1%) ⁄ariances	CV%	%Effect
Error Total Distributional Attribute Variances Distribution Mean Dry Biol Conc-%	0.018971 0.023557 Tests Test Bartlett Edit Shapiro-V	1 1 quality of V Vilk W Norn	0.001054 ariance Test		18 23 Test Stat 11.86 0.9298	Critical 15.09 0.884	P-Value 0.0368 0.0963	Decision Equal V Normal	on(α:1%) /ariances Distribution		%Effect 0.00%
Error Total Distributional Attribute Variances Distribution Mean Dry Biol Conc-% 0	0.018971 0.023557 Tests Test Bartlett Ec Shapiro-V mass-mg Summ	1 quality of V Vilk W Norn nary Count	0.001054 ariance Test mality Test	95% LCL	18 23 Test Stat 11.86 0.9298	Critical 15.09 0.884	P-Value 0.0368 0.0963 Min	Decision Equal Normal	on(α:1%) /ariances Distribution	CV% 9.41%	
Error Total Distributional Attribute Variances Distribution Mean Dry Bior Conc-% 0 6.25	0.018971 0.023557 Tests Test Bartlett Ec Shapiro-V mass-mg Summ	quality of V Vilk W Norn nary Count	0.001054 Variance Test mality Test Mean 0.4967	95% LCL 0.4223	18 23 Test Stat 11.86 0.9298 95% UCL 0.5712	Critical 15.09 0.884 Median 0.505	P-Value 0.0368 0.0963 Min 0.433	Decision Equal Normal Max 0.544	on(α:1%) /ariances Distribution Std Err 0.02338	CV% 9.41%	0.00%
Error Total Distributional Attribute Variances Distribution Mean Dry Bion Conc-% 0 6.25 12.5	0.018971 0.023557 Tests Test Bartlett Ec Shapiro-V mass-mg Summ	quality of V Vilk W Norn nary Count 4	0.001054 Pariance Test mality Test Mean 0.4967 0.5212	95% LCL 0.4223 0.4978	18 23 Test Stat 11.86 0.9298 95% UCL 0.5712 0.5446	Critical 15.09 0.884 Median 0.505 0.52	P-Value 0.0368 0.0963 Min 0.433 0.507	Decision Equal Normal Max 0.544 0.538	on(α:1%) /ariances Distribution Std Err 0.02338 0.007353	CV% 9.41% 2.82%	0.00% -4.93%
Error Total Distributional Attribute Variances Distribution Mean Dry Biol Conc-% 0 6.25 12.5	0.018971 0.023557 Tests Test Bartlett Ec Shapiro-V mass-mg Summ	quality of V Vilk W Normary Count 4 4 4	0.001054 Variance Test mality Test Mean 0.4967 0.5212 0.5313	95% LCL 0.4223 0.4978 0.5068	18 23 Test Stat 11.86 0.9298 95% UCL 0.5712 0.5446 0.5557	Critical 15.09 0.884 Median 0.505 0.52 0.5355	P-Value 0.0368 0.0963 Min 0.433 0.507 0.51	Decision Equal V Normal Max 0.544 0.538 0.544	on(α:1%) /ariances Distribution Std Err 0.02338 0.007353 0.007695	CV% 9.41% 2.82% 2.90%	0.00% -4.93% -6.95% -1,41%
Error Total Distributional Attribute Variances Distribution Mean Dry Bio Conc-% 0 6.25 12.5 25 50	0.018971 0.023557 Tests Test Bartlett Ec Shapiro-V mass-mg Summ	quality of V Vilk W Normary Count 4 4 4	0.001054 Variance Test mality Test Mean 0.4967 0.5212 0.5313 0.5038	95% LCL 0.4223 0.4978 0.5068 0.4607	18 23 Test Stat 11.86 0.9298 95% UCL 0.5712 0.5446 0.5557 0.5468	Critical 15.09 0.884 Median 0.505 0.52 0.5355 0.5055	P-Value 0.0368 0.0963 Min 0.433 0.507 0.51 0.474	Decision Equal Normal Max 0.544 0.538 0.544 0.53	on(α:1%) /ariances Distribution Std Err 0.02338 0.007353 0.007695 0.01352	CV% 9.41% 2.82% 2.90% 5.37%	0.00% -4.93% -6.95% -1,41%
Error Total Distributional Attribute Variances Distribution Mean Dry Biol Conc-% 0 6.25 12.5 25 50 100	0.018971 0.023557 Tests Test Bartlett Ec Shapiro-V mass-mg Summ	quality of V Vilk W Norn nary Count 4 4 4 4 4	0.001054 Variance Test mality Test Mean 0.4967 0.5212 0.5313 0.5038 0.513	95% LCL 0.4223 0.4978 0.5068 0.4607 0.4275	18 23 Test Stat 11.86 0.9298 95% UCL 0.5712 0.5446 0.5557 0.5468 0.5985	Critical 15.09 0.884 Median 0.505 0.52 0.5355 0.5055 0.5255	P-Value 0.0368 0.0963 Min 0.433 0.507 0.51 0.474 0.438	Decision Equal V Normal Max 0.544 0.538 0.544 0.53 0.563	on(α:1%) /ariances Distribution Std Err 0.02338 0.007353 0.007695 0.01352 0.02686	CV% 9.41% 2.82% 2.90% 5.37% 10.47%	0.00% -4.93% -6.95% -1,41% -3.27%
Error Total Distributional Attribute Variances Distribution Mean Dry Biol Conc-% 0 6.25 12.5 25 50 100 Mean Dry Biol Conc-%	0.018971 0.023557 Tests Test Bartlett Ec Shapiro-V mass-mg Summ Code D	quality of V Vilk W Norn nary Count 4 4 4 4 4 4 Rep 1	0.001054 Variance Test mality Test Mean 0.4967 0.5212 0.5313 0.5038 0.513 0.535 Rep 2	95% LCL 0.4223 0.4978 0.5068 0.4607 0.4275 0.522	18 23 Test Stat 11.86 0.9298 95% UCL 0.5712 0.5446 0.5557 0.5468 0.5985 0.548	Critical 15.09 0.884 Median 0.505 0.52 0.5355 0.5055 0.5255	P-Value 0.0368 0.0963 Min 0.433 0.507 0.51 0.474 0.438	Decision Equal V Normal Max 0.544 0.538 0.544 0.53 0.563	on(α:1%) /ariances Distribution Std Err 0.02338 0.007353 0.007695 0.01352 0.02686	CV% 9.41% 2.82% 2.90% 5.37% 10.47%	0.00% -4.93% -6.95% -1,41% -3.27%
Error Total Distributional Attribute Variances Distribution Mean Dry Bior Conc-% 0 6.25 12.5 25 50 100 Mean Dry Bior Conc-% 0 Conc-% 0	0.018971 0.023557 Tests Test Bartlett Ed Shapiro-V mass-mg Summ Code D	quality of V Vilk W Norn Count 4 4 4 4 4 4 4 7 8 8 8 9 1	0.001054 Variance Test mality Test Mean 0.4967 0.5212 0.5313 0.5038 0.513 0.535 Rep 2 0.433	95% LCL 0.4223 0.4978 0.5068 0.4607 0.4275 0.522 Rep 3 0.497	18 23 Test Stat 11.86 0.9298 95% UCL 0.5712 0.5446 0.5557 0.5468 0.5985 0.548 Rep 4 0.513	Critical 15.09 0.884 Median 0.505 0.52 0.5355 0.5055 0.5255	P-Value 0.0368 0.0963 Min 0.433 0.507 0.51 0.474 0.438	Decision Equal V Normal Max 0.544 0.538 0.544 0.53 0.563	on(α:1%) /ariances Distribution Std Err 0.02338 0.007353 0.007695 0.01352 0.02686	CV% 9.41% 2.82% 2.90% 5.37% 10.47%	0.00% -4.93% -6.95% -1.41% -3.27%
Error Total Distributional Attribute Variances Distribution Mean Dry Biol 6.25 12.5 25 50 100 Mean Dry Biol Conc-% 0 6.25 100 Mean Dry Biol Conc-% 0 6.25	0.018971 0.023557 Tests Test Bartlett Ec Shapiro-V mass-mg Summ Code D	quality of V Vilk W Norn nary Count 4 4 4 4 4 4 4 7 8 8 9 1 0.544 0.507	0.001054 Variance Test mality Test Mean 0.4967 0.5212 0.5313 0.5038 0.513 0.535 Rep 2	95% LCL 0.4223 0.4978 0.5068 0.4607 0.4275 0.522	18 23 Test Stat 11.86 0.9298 95% UCL 0.5712 0.5446 0.5557 0.5468 0.5985 0.548	Critical 15.09 0.884 Median 0.505 0.52 0.5355 0.5055 0.5255	P-Value 0.0368 0.0963 Min 0.433 0.507 0.51 0.474 0.438	Decision Equal V Normal Max 0.544 0.538 0.544 0.53 0.563	on(α:1%) /ariances Distribution Std Err 0.02338 0.007353 0.007695 0.01352 0.02686	CV% 9.41% 2.82% 2.90% 5.37% 10.47%	0.00% -4.93% -6.95% -1.41% -3.27%
Error Total Distributional Attribute Variances Distribution Mean Dry Bio Conc-% 0 6.25 12.5 25 50 100 Mean Dry Biol Conc-% 0 6.25 12.5 25 50 100	0.018971 0.023557 Tests Test Bartlett Ec Shapiro-V mass-mg Summ Code D	quality of V Vilk W Norn Count 4 4 4 4 4 4 4 7 8 8 8 9 1	0.001054 Variance Test mality Test Mean 0.4967 0.5212 0.5313 0.5038 0.513 0.535 Rep 2 0.433	95% LCL 0.4223 0.4978 0.5068 0.4607 0.4275 0.522 Rep 3 0.497	18 23 Test Stat 11.86 0.9298 95% UCL 0.5712 0.5446 0.5557 0.5468 0.5985 0.548 Rep 4 0.513	Critical 15.09 0.884 Median 0.505 0.52 0.5355 0.5055 0.5255	P-Value 0.0368 0.0963 Min 0.433 0.507 0.51 0.474 0.438	Decision Equal V Normal Max 0.544 0.538 0.544 0.53 0.563	on(α:1%) /ariances Distribution Std Err 0.02338 0.007353 0.007695 0.01352 0.02686	CV% 9.41% 2.82% 2.90% 5.37% 10.47%	0.00% -4.93% -6.95% -1,41% -3.27%
Error Total Distributional Attribute Variances Distribution Mean Dry Bio Conc-% 0 6.25 12.5 25 50 100 Mean Dry Biol Conc-% 0 6.25 12.5 25 50 100	0.018971 0.023557 Tests Test Bartlett Ec Shapiro-V mass-mg Summ Code D	quality of V Vilk W Norn nary Count 4 4 4 4 4 4 4 7 8 8 9 1 0.544 0.507	0.001054 Pariance Test mality Test Mean 0.4967 0.5212 0.5313 0.5038 0.513 0.535 Rep 2 0.433 0.529	95% LCL 0.4223 0.4978 0.5068 0.4607 0.4275 0.522 Rep 3 0.497 0.538	18 23 Test Stat 11.86 0.9298 95% UCL 0.5712 0.5446 0.5557 0.5468 0.5985 0.548 Rep 4 0.513 0.511	Critical 15.09 0.884 Median 0.505 0.52 0.5355 0.5055 0.5255	P-Value 0.0368 0.0963 Min 0.433 0.507 0.51 0.474 0.438	Decision Equal V Normal Max 0.544 0.538 0.544 0.53 0.563	on(α:1%) /ariances Distribution Std Err 0.02338 0.007353 0.007695 0.01352 0.02686	CV% 9.41% 2.82% 2.90% 5.37% 10.47%	0.00% -4.93% -6.95% -1.41% -3.27%
Error Total Distributional Attribute Variances Distribution Mean Dry Biol Conc-% 0 6.25 12.5 25 50 100 Mean Dry Biol Conc-% 0 6.25 0 6.25	0.018971 0.023557 Tests Test Bartlett Ec Shapiro-V mass-mg Summ Code D	quality of V Vilk W Normary Count 4 4 4 4 4 0.544 0.507 0.53	0.001054 Pariance Test mality Test Mean 0.4967 0.5212 0.5313 0.5038 0.513 0.535 Rep 2 0.433 0.529 0.544	95% LCL 0.4223 0.4978 0.5068 0.4607 0.4275 0.522 Rep 3 0.497 0.538 0.51	18 23 Test Stat 11.86 0.9298 95% UCL 0.5712 0.5446 0.5557 0.5468 0.5985 0.548 Rep 4 0.513 0.511 0.541	Critical 15.09 0.884 Median 0.505 0.52 0.5355 0.5055 0.5255	P-Value 0.0368 0.0963 Min 0.433 0.507 0.51 0.474 0.438	Decision Equal V Normal Max 0.544 0.538 0.544 0.53 0.563	on(α:1%) /ariances Distribution Std Err 0.02338 0.007353 0.007695 0.01352 0.02686	CV% 9.41% 2.82% 2.90% 5.37% 10.47%	0.00% -4.93% -6.95% -1,41% -3.27%

000-222-335-4

CETIS™ v1.9.4.1

Analyst:_____ QA:____

Report Date: Test Code/ID: 13 Nov-19 13:22 (p 4 of 4) 19-1508b / 15-5205-7250

Fathead Minnow 7-d Larval Survival and Growth Test

New England Bioassay

Analyzed:

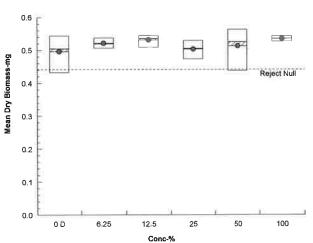
Analysis ID: 18-9170-8476 13 Nov-19 13:22 Endpoint: Mean Dry Biomass-mg Parametric-Control vs Treatments Analysis:

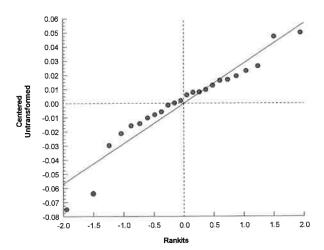
CETIS Version: Status Level:

CETISv1.9.4

1

Graphics





		Final Weight	Initial Weight	Total Weight	Average per	Mean fish	Standard
Concentration	Rep	(mg)	(mg)	(mg)	fish (mg)	weight (mg)	Deviation
NEB Lab	1	936.51	931.07	5.44	0.544	0.4968	0.046764481
	2	941.39	937.06	4.33	0.433		
Synthetic Diluent	3	944.48	939.51	4.97	0.497		
Diluent	4	937.05	931.92	5.13	0.513		
	1	920.72	916.37	4.35	0.435	0.3528	0.237171352
Pine Brook	2	0.00	0.00	0.00	0.000		
Control	3	922.37	917.71	4.66	0.466		
	4	920.48	915.38	5.10	0.510		
	1	939.59	934.52	5.07	0.507	0.5213	0.014705441
6.25%	2	940.49	935.20	5.29	0.529		
6.25%	3	934.76	929.38	5.38	0.538		
	4	932.86	927.75	5.11	0.511		
	1	932.56	927.26	5.30	0.530	0.5312	0.015392098
12.5%	2	930.41	924.97	5.44	0.544		
12.5%	3	931.40	926.30	5.10	0.510		
	4	936.24	930.83	5.41	0.541		
	1	929.91	925.17	4.74	0.474	0.5037	0.027035471
250/	2	922.48	917.60	4.88	0.488		
25%	3	925.02	919.72	5.30	0.530		
	4	940.20	934.97	5.23	0.523		
	1	935.15	929.52	5.63	0.563	0.5130	0.053721504
F00/	2	933.29	928.91	4.38	0.438		
50%	3	935.61	930.25	5.36	0.536		
	4	932.23	927.08	5.15	0.515		
	1	929.41	924.12	5.29	0.529	0.5350	0.008164966
1000/	2	929.07	923.66	5.41	0.541		
100%	3	925.11	919.68	5.43	0.543		
	4	926.55	921.28	5.27	0.527		

NEB'S DATA SHEET FOR ROUTINE CHEMICAL AND PHYSICAL DETERMINATIONS

FACILITY NAME & ADDR	ESS:	Pine Brook Country Club, 42 Newton Street, Weston MA 02193 05.0752101.00 TEST ORGANISM Pimephales prometa.									
NEB PROJECT NUMBER:	CE:		ratory Soft V		START DAT		10/22/19	The water the state of the stat			
ANALYST	LS	ВА	СН	LS	ко	ко	СН				
NEB Lab Synthetic Diluent	1	2	3	4	5	6	7	Remarks			
Temp °C Initial	24.7	25.3	25.2	25.0	25.4	25.4	25.5				
D.O. mg/L Initial	8.3	8.2	8.4	8.4	8.3	8.3	8.2				
pH s.u. Initial	7.5	7.3	7.2	7.4	7.5	7.2	7.6				
Conductivity µS Initial	177	175	175	177	177	177	177				
Temp °C Final	24.8	24.5	24.3	25.2	24.8	25.0	24.9				
D.O. mg/L Final	7.8	7.9	7.6	7.5	7.7	7.4	7.3				
pH s.u. Final	7.6	7.4	7.8	7.8	7.2	7.5	7.2				
Conductivity µS Final	182	200	200	188	191	193	191				
Pine Brook Control	1	2	3	4	5	6	7	Remarks			
Temp °C Initial	25.8	24.7	24.0	24.5	26.0	25.7	26.0				
D.O. mg/L Initial	9.1	9.1	9.9	9.3	9.1	8.9	9.2				
pH s.u. Initial	7.0	7.1	7.0	7.3	7.3	6.9	7.4				
Conductivity µS Initial	351	348	319	321	353	352	353				
Temp °C Final	25.0	24.8	24.6	24.8	25.2	25.6	24.9				
D.O. mg/L Final	7.6	7.6	7.6	8.0	7.5	7.2	7.2				
pH s.u. Final	7.5	7.3	7.7	7.9	7.1	7.5	7.1				
Conductivity µS Final	350	374	351	336	365	369	370				
6.25%	1	2	3	4	5	6	7	Remarks			
Temp °C Initial	25.0	25.2	25.2	25.1	25.3	25.5	25.7				
D.O. mg/L Initial	8.3	8.3	8.3	8.3	8.3	8.2	8.2				
pH s.u. Initial	7.2	7.3	7.2	7.5	7.5	7.1	7.6				
Conductivity µS Initial	221	220	218	223	222	220	216				
Temp °C Final	24.7	24.5	24.4	25.1	24.6	24.8	24.7				
D.O. mg/L Final	7.8	7.8	7.5	7.5	7.7	7.4	7.3				
pH s.u. Final	7.5	7.3	7.6	7.8	7.2	7.5	7.2				
Conductivity µS Final	224	244	248	237	244	237	233				
12.5%	1	2	3	4	5	6	7	Remarks			
Temp °C Initial	25.0	25.2	25.2	25.2	25.3	25.6	25.8				
D.O. mg/L Initial	8.3	8.2	8.4	8.3	8.3	8.2	8.2				
pH s.u. Initial	7.2	7.3	7.2	7.5	7.5	7.2	7.7				
Conductivity µS Initial	264	263	264	268	262	258	256				
Temp °C Final	25.0	24.4	24.3	24.9	24.9	25.3	24.7				
D.O. mg/L Final	7.6	7.6	7.5	7.6	7.7	7.3	7.3				
pH s.u. Final	7.5	7.3	7.5	7.7	7.2	7.5	7.2				
Conductivity µS Final	266	288	290	282	285	274	274				

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NEB'S DATA SHEET FOR ROUTINE CHEMICAL AND PHYSICAL DETERMINATIONS

FACILITY NAME & ADDI					on Street, W			
NEB PROJECT NUMBER			5.0752101.0		TEST ORGA			phales promelas
DILUTION WATER SOUR	_		ratory Soft \		START DAT		10/22/19	
25%	1	2	3	4	5	6	7	Remarks
Temp °C Initial	25.1	25.2	25.1	25.4	25.2	25.6	26.0	
D.O. mg/L Initial	8.3	8.3	8.5	8.3	8.3	8.3	8.2	
pH s.u. Initial	7.3	7.4	7.2	7.5	7.5	7,2	7.7	
Conductivity µS Initial	352	350	349	350	346	342	338	
Temp °C Final	24.7	24.6	24.5	25.0	24.8	25.0	24.8	
D.O. mg/L Final	7.7	7.7	7.6	7.3	7.5	7.3	7.2	
pH s.u. Final	7.6	7.3	7.5	7.7	7.3	7.5	7.2	
Conductivity µS Final	354	377	378	366	370	361	357	
50%	1	2	3	4	5	6	7	Remarks
Temp °C Initial	25.5	25.1	24.7	25.5	25.2	26.0	26.0	
D.O. mg/L Initial	8.3	8.4	8.7	8.4	8.4	8.3	8.2	
pH s.u. Initial	7.3	7.4	7.2	7.4	7.5	7.2	7.7	
Conductivity μS Initial	528	528	529	531	503	507	509	
Temp °C Final	24.7	24.5	24.4	25.2	24.8	24.8	24.7	
D.O. mg/L Final	7.7	7.8	7.7	7.4	7.6	7.5	7.3	
pH s.u. Final	7.5	7.3	7.5	7.7	7.3	7.6	7.2	
Conductivity µS Final	526	561	567	547	527	526	530	
100%	1	2	3	4	5	6	7	Remarks
Temp °C Initial	25.8	25.0	24.0	26.0	24.9	26.0	25.6	
D.O. mg/L Initial	8.4	8.8	9.4	8.6	8.7	8.5	9.1	
pH s.u. Initial	7.3	7.4	7.2	7.4	7.4	7.2	7.5	
Conductivity µS Initial	870	866	869	873	825	827	828	
Temp °C Final	25.2	24.4	24.5	25.2	24.8	25.6	25.2	
D.O. mg/L Final	7.5	7.8	7.5	7.3	7.6	6.9	6.9	
pH s.u. Final	7.4	7.3	7.5	7.6	7.3	7.5	7.3	
Conductivity µS Final	861	898	904	892	851	843	846	
	1 332				1		1	
		-						
	-				-			

Table of Random Permutations of 16									P.promelas Test ID#				#	19-1508b						
7	12	15	15	1		2	7	16	10	2	14	15	7	13	13	10	6	1	8	10
13	3	8 4	16	7 14		10	11	10	13	5	11	7	13	16	7	7	5	13 4	2 5	14
3 11	1 8	16	5 14	15		13 6	3 2	14 6	9 2	13 16	13 8	2 5	9 12	15 3	6 9	2 13	8 4	3	10	8 4
14	9	1	6	3		9	14	13	8	6	5	8	14	7	3	15	13	11	4	7
2	16	10	13	5		5	13	2	11	7	3	12	5	14	12	16	2	2	9	15
4	6	13	7	2		15	1	9	1	4	7	10	6	9	11	9	7	6	16	11
6	14	6	10	4		14	4	15	3	3	4	16	2	6	5	1	12	10	6	9
10	15 10	2 7	1 12	13 9		12	16 9	3 8	4 12	8	10	1	15 11	5	14 16	12 8	14 9	12 14	3 14	2 1
12 15	7	5	2	9 10		11 7	8	12	6	14 15	15 6	4 13	16	8 12	15	4	11	8	12	6
16	2	11	8	8		8	15	5	16	1	1	9	8	1	8	14	16	5	13	5
9	13	14	3	6		4	10	11	5	12	9	3	10	4	4	3	10	9	1	3
8	11	9	4	11		3	12	7	7	10	12	14	3	10	1	6	15	16	15	12
1	5	12	11	16		16	5	4	14	9	16	11	1	2	10	5	1	15	7	13
5	4	3	9	12		1	6	1	15	11	2	6	4	11	2	11	3	7	11	16
11	8	16	5	5		13	1	13	2	16	14	12	9	8	7	5	13	3	13	3
2	2	8	8	14		16	4	3	8	11	10	14	15	1	2	11	4	5	15	9
16 14	13 12	2 4	13 16	6 16		5 11	9 14	15 10	11 5	10 12	12 3	6 3	16 12	15 14	16 15	9 13	10 6	12 4	16 1	15 16
8	6	3	9	4		10	6	4	16	2	2	9	8	16	4	6	5	15	7	8
9	15	12	10	3		2	12	6	1	15	4	13	7	7	9	12	14	8	8	11
3	10	11	12	13		12	5	11	7	8	9	5	14	11	10	1	3	13	3	5
16	1	13	14	8		14	15	5	3	7	11	15	6	12	5	7	11	1	14	4
1	14	14	2	9		15	16	14	6	14	7	8	3	13	11	8	7	7	12	7
4 15	4 5	6 1	4 11	12 10		3 6	11 3	8 7	15 10	9 5	8 5	1 11	13 10	6 10	3 12	3 15	15 16	9 14	9 5	12 2
5	3	5	6	7		7	13	2	14	3	16	4	5	5	13	4	9	16	2	6
12	7	15	15	15		9	8	12	12	13	15	10	1	4	6	16	2	6	11	1
10	11	10	3	2		4	2	1	4	6	6	7	11	9	14	10	8	11	4	13
7	9	7	7	11		1	7	16	13	1	13	2	4	2	1	2	12	2	10	14
13	16	9	1	1		8	10	9	9	4 Rep	1	16 Conc	2	3	8	14	1	10	6	10
1	6	7	4	8		6	5	2	8	15	4	6	6	1	4	5	7	13	2	10
9	15	11	3	11		15	9	10	1	3	8	2	15	7	9	8	16	1	14	3
10	16	4	5	12		9	16	11	7	1	7	16	11	8	3	3	12	2	3	4
4	14	1	9	5		5	4	13	6	8	15	5	12	5	7	16	5	11	8	1
7 16	3 11	13 2	14 1	15 14		2 16	1 6	14 9	16 3	5 4	14 16	9 14	2 3	16 15	1 11	12 11	6 3	14 9	4 12	13 5
3	10	16	16	13		7	13	1	11	14	9	10	16	2	10	2	10	7	10	16
11	13	9	13	4		13	8	3	5	13	10	12	5	12	5	14	13	16	5	6
15	2	3	12	9		12	2	4	13	10	3	13	14	4	2	1	14	8	6	12
14	1	14	6	10		1	3	12	4	2	2	4	13	3	16	9	9	3	7	14
13	12	5	11	3		11	15	8	2	7	11	7	8	14	6	4	4	4	15	11
12 8	5 9	10 8	7 10	2 6		14 4	7 11	15 7	14 10	16 11	13 6	1 8	9 4	10 9	12 8	10 15	11 8	10 6	9 11	8 9
2	7	6	2	1		8	10	6	15	12	1	11	7	11	13	6	1	15	13	15
6	4	15	8	16		10	14	16	9	6	12	3	10	6	14	7	2	12	16	7
5	8	12	15	7		3	12	5	12	9	5	15	1	13	15	13	15	5	1	2
13	4	10	4	16		13	16	13	5	3	6	14	1	16	8	7	2	3	3	12
5	14	4	6	8		2	15	1	13	14	16	4	15	4	3	12	12	1	4	7
2	2	2	15	14		16	9	12	16	6	10	15	14	9	10	1	14	8	8	16
7	12	15	8	12		3	5	14	7	12	5	13	16	1	7	5	11	2	9	3
6	9	7	14	9		14	10	11	15	11	12	1	12	12 3	14	16	3 4	11 6	11	8
14 15	5 11	16 8	7 9	10 7		8 12	11 8	8 7	14 1	13 15	7 9	11 3	6 3	3 7	11 13	4 11	10	4	6 5	9 1
11	6	6	1	4		1	3	16	12	5	4	9	13	13	6	8	15	9	1	14
4	10	3	16	2		11	7	9	6	9	1	8	4	11	5	2	16	10	12	4
1	8	1	13	1		15	4	4	11	4	2	16	5	8	1	9	5	12	16	6
9	7	14	2	6		4	14	10	9	8	15	10	7	10	9	10	6	14	10	11
12 3	1	9 12	10 11	15 5		5 9	2 6	15 6	10 3	2 10	14 13	2 12	8 9	2 6	4 2	13 15	8 7	5 15	15 7	5 13
10	3 15	11	5	13		7	12	5	2	7	11	5	10	15	12	3	1	13	13	10
8	13	13	3	3		10	13	2	4	1	8	6	11	14	15	6	9	16	2	2
16	16	5	12	11		6	1	3	8	16	3	7	2	5	16	14	13	7	14	15

CHEMICAL ANALYSIS

Please note the subcontract laboratory has its own QAQC and data review processes, and therefore New England Bioassay does not review the analytical results we receive.

49 of 85 NEB Issued: 11/14/19



Friday, October 25, 2019

Attn: Ms. Kim Wills
New England Bioassay
a Division of GZA GeoEnvironmental
77 Batson Drive
Manchester, CT 06040

Project ID: PINE BROOK COUNTRY CLUB

SDG ID:

GCE44716

Sample ID#s: CE44716 - CE44718

This laboratory is in compliance with the NELAC requirements of procedures used except where indicated.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory. This report is incomplete unless all pages indicated in the pagination at the bottom of the page are included.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200. The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Sincerely yours.

Phyllis/Shiller

Laboratory Director

NELAC - #NY11301 CT Lab Registration #PH-0618 MA Lab Registration #M-CT007 ME Lab Registration #CT-007 NH Lab Registration #213693-A,B NJ Lab Registration #CT-003 NY Lab Registration #11301 PA Lab Registration #68-03530 RI Lab Registration #63 UT Lab Registration #CT00007 VT Lab Registration #VT11301



587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045 Tel. (860) 645-1102 Fax (860) 645-0823

Sample Id Cross Reference

October 25, 2019

SDG I.D.: GCE44716

Project ID:

PINE BROOK COUNTRY CLUB

Client Id	Lab Id	Matrix
EFFLUENT #1 C39-3895	CE44716	WASTE WATER
PINE BROOK #1 C39-3896	CE44717	WATER
EFF GRAB #1	CE44718	WASTE WATER



587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045 Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

October 25, 2019

FOR: Attn: Ms. Kim Wills

New England Bioassay

a Division of GZA GeoEnvironmental

77 Batson Drive

Manchester, CT 06040

see "By" below

Sample Informa	<u>tion</u>	Custody Informa	ation	<u>Date</u>	<u>Time</u>
Matrix:	WASTE WATER	Collected by:		10/21/19	8:22
Location Code:	NEB	Received by:	LB	10/21/19	16:56

Rush Request: Standard Analyzed by:

P.O.#: 22610

aboratory Data

SDG ID: GCE44716

Phoenix ID: CE44716

PINE BROOK COUNTRY CLUB Project ID:

Client ID: EFFLUENT #1 C39-3895

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	Ву	Reference	
Aluminum	0.154	0.010	mg/L	1	10/23/19	TH	E200.7	
Cadmium	< 0.0001	0.0001	mg/L	1	10/24/19	RS	SM3113B	
Copper	0.0326	0.0010	mg/L	1	10/23/19	TH	E200.7	
Hardness (CaCO3)	96.5	0.1	mg/L	1	10/23/19		SM2340B	
Nickel	0.005	0.001	mg/L	1	10/23/19	TH	E200.7	
Lead	< 0.0003	0.0003	mg/L	1	10/23/19	RS	SM3113B	
Zinc	0.046	0.002	mg/L	1	10/23/19	TH	E200.7	
Alkalinity-CaCO3	55.6	5.00	mg/L	1	10/21/19	AP/EG	SM2320B-11	
Conductivity	745	5.00	umhos/cm	1	10/21/19	AP/EG	SM2510B-11	
Ammonia as Nitrogen	< 0.05	0.05	mg/L	1	10/25/19	KDB	E350.1	
Tot. Diss. Solids	520	10	mg/L	1	10/23/19	ARG/NLM	uSM2540C-11	В
Tot. Org. Carbon	5.38	0.50	mg/L	1	10/22/19	EG	SM5310B-11	
Total Solids	520	10	mg/L	1	10/23/19	NLM/BJ/	SM2540B-11	
Total Metals Digestion	Completed				10/22/19	AG		

B = Present in blank, no bias suspected.

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200. The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Reviewed and Released by: Helen Geoghegan, Project Manager



587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045 Fax (860) 645-0823 Tel. (860) 645-1102

Analysis Report

October 25, 2019

FOR:

Attn: Ms. Kim Wills

New England Bioassay

a Division of GZA GeoEnvironmental

77 Batson Drive

Manchester, CT 06040

Sample Information

WATER

Custody Information Collected by:

LB

10/21/19

Date

Time 8:45

Location Code:

NEB

Received by: Analyzed by:

see "By" below

10/21/19 16:56

Rush Request: P.O.#:

Matrix:

Standard 22610

aboratory Data

SDG ID: GCE44716

Phoenix ID: CE44717

Project ID:

PINE BROOK COUNTRY CLUB

Client ID:

PINE BROOK #1 C39-3896

arameter	Result	RL/ PQI
luminum	0.048	0.01

Parameter	Result	PQL	Units	Dilution	Date/Time	Ву	Reference
Aluminum	0.048	0.010	mg/L	1	10/23/19	TH	SW6010D/E200.7
Cadmium	< 0.0001	0.0001	mg/L	1	10/24/19	RS	SM3113B/SW7010-10
Copper	0.0016	0.0010	mg/L	1	10/23/19	TH	SW6010D/E200.7
Hardness (CaCO3)	52.8	0.1	mg/L	1	10/23/19		E200.7
Nickel	< 0.001	0.001	mg/L	1	10/23/19	TH	SW6010D/E200.7
Lead	< 0.0003	0.0003	mg/L	1	10/23/19	RS	SM3113B/SW7010
Zinc	0.004	0.002	mg/L	1	10/23/19	TH	SW6010D/E200.7
Alkalinity-CaCO3	38.9	5.00	mg/L	1	10/21/19	AP/EG	SM2320B-11
Conductivity	278	5.00	umhos/cm	1	10/21/19	AP/EG	SM2510B-11
Ammonia as Nitrogen	0.05	0.05	mg/L	1	10/25/19	KDB	E350.1
pH	6.65	1.00	pH Units	1	10/21/19 23:39	AP/EG	SM4500-H B-11
Tot. Org. Carbon	5.13	0.50	mg/L	1	10/22/19	EG	SM5310B-11
Total Metals Digestion	Completed				10/22/19	AG	

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200. The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Shiller, Laboratory Director

October 25, 2019

Reviewed and Released by: Helen Geoghegan, Project Manager



587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045 Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

October 25, 2019

FOR: Attn: Ms. Kim Wills

New England Bioassay

a Division of GZA GeoEnvironmental

77 Batson Drive

see "By" below

Manchester, CT 06040

Sample Information

WASTE WATER

Custody Information Collected by:

Date

Time 8:31

Matrix:

LB

10/21/19

Location Code:

NEB

Received by: Analyzed by:

10/21/19

16:56

Rush Request: P.O.#:

Standard 22610

aboratory Data

SDG ID: GCE44716

Phoenix ID: CE44718

Project ID:

PINE BROOK COUNTRY CLUB

Client ID:

EFF GRAB #1

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	Ву	Reference
Chlorine Residual	< 0.02	0.02	mg/L	1	10/21/19 17:51	0	SM4500CLG-97
pH	6.93	1.00	pH Units	1	10/21/19 23:42	AP/EG	SM4500-H B-11

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

The regulatory hold time for Chlorine is immediately. This Chlorine was performed in the laboratory and may be considered outside of hold-time.

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of holdtime.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200. The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Phyllis Shiller, Laboratory Director

October 25, 2019

Reviewed and Released by: Helen Geoghegan, Project Manager

Ver 1



587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045 Tel. (860) 645-1102 Fax (860) 645-0823

QA/QC Report

October 25, 2019

QA/QC Data

SDG I.D.: GCE44716

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 502737 (mg/L), Q	C Sam	ple No: (CE44710	(CE447	16, CE4	1 4717)							
Cadmium - Water	BRL	0.0001	< 0.0001	<0.0001	NC	110			111			75 - 125	20
QA/QC Batch 502737 (mg/L), Q	C Sam	ple No: (CE44710	(CE447	16, CE4	1 4717)							
Lead (Furnace) - Water	BRL	0.001	< 0.0003	< 0.001	NC	110			117			75 - 125	30
QA/QC Batch 502750 (mg/L), Q	C Sam _l	ple No: (CE43989	(CE447	16, CE4	1 4717)							
ICP Metals - Aqueous													
Aluminum	BRL	0.010	0.020	0.019	NC	103	102	1.0	104			75 - 125	20
Copper	BRL	0.0025	0.038	0.0416	9.00	104	103	1.0	106			75 - 125	20
Nickel	BRL	0.0005	0.003	0.0034	NC	105	104	1.0	107			75 - 125	20
Zinc	BRL	0.0020	0.103	0.104	1.00	103	103	0.0	104			75 - 125	20



587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045 Tel. (860) 645-1102 Fax (860) 645-0823

QA/QC Report

October 25, 2019

QA/QC Data

SDG I.D.: GCE44716

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 502859 (mg/L), QC Sample No: CE43643 (CE44716)													
Tot. Diss. Solids Comment:	13	10	300	290	3.40	96.0						85 - 115	20
Additional: LCS acceptance range	is 85-11	5% MS	acceptance	erange 7	' 5-125%								
QA/QC Batch 502665 (mg/L), 0	C Samp	ole No:	CE44564	(CE447	16, CE4	14717)							
Alkalinity-CaCO3 Comment:	BRL	5.00	71	70	NC	99.0						85 - 115	20
Additional: LCS acceptance range	is 85-11	5% MS	acceptance	e range 7	75-125%								
QA/QC Batch 502673 (umhos/o	m), QC	Sample	e No: CE4	4564 (C	E44716	6, CE44	717)						
Conductivity Comment:	BRL	5.00	304	319	4.80	90.5						85 - 115	20
Additional: LCS acceptance range	is 85-11	5% MS	acceptance	erange 7	75-125%								
QA/QC Batch 502660 (pH), QC	Sample	No: C	E44564 (0	CE44717	, CE44	718)							
pН			7.09	7.13	0.60	96.8						85 - 115	20
Comment:													
Additional: LCS acceptance range			•	•									
QA/QC Batch 502860 (mg/L), C	•			•		•							
Total Organic Carbon Comment:	BRL	1.0	1.2	1.3	NC	96.0			98.0			85 - 115	20
Additional: LCS acceptance range	is 85-11	5% MS	acceptance	erange 7	' 5-125%								
QA/QC Batch 502932 (mg/L), 0	C Samp	le No:	CE44716	(CE447	16)								
Total Solids Comment:	BRL	10	520	520	0	96.0						85 - 115	20
Additional: LCS acceptance range	is 85-11	5% MS	acceptance	e range 7	'5-125%								
QA/QC Batch 503151 (mg/L), C	C Samp	le No:	CE44714	(CE447	16, CE4	14717)							
Ammonia as Nitrogen	BRL	0.05	0.14	0.18	NC	101			90.9			90 - 110	20
QA/QC Batch 502578 (mg/L), C	C Samp	le No:	CE44718	(CE447	18)								
Chlorine Residual	BRL	0.02	<0.02	<0.02	NC	107							

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

RPD - Relative Percent Difference

LCS - Laboratory Control Sample

LCSD - Laboratory Control Sample Duplicate

MS - Matrix Spike

MS Dup - Matrix Spike Duplicate

NC - No Criteria

Intf - Interference

Phyllis Shiller, Laboratory Director October 25, 2019

Page 7 of 10

Friday, October 25, 2019

State: MA

SampNo

Sample Criteria Exceedances Report

Criteria: None GCE44716 - NEB

Criteria

Phoenix Analyte

Result F

RL Criteria

Analysis Unils

Phoenix Laboratories does not assume responsibility for the data contained in this exceedance report. It is provided as an additional tool to identify requested criteria exceedences. All efforts are made to ensure the accuracy of the data (obtained from appropriate agencies). A lack of exceedence information does not necessarily suggest conformance to the criteria. It is ultimately the site professional's responsibility to determine appropriate compliance.

Page 8 of 10

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^{***} No Data to Display ***



587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045 Tel. (860) 645-1102 Fax (860) 645-0823



Analysis Comments

October 25, 2019

SDG I.D.: GCE44716

The following analysis comments are made regarding exceptions to criteria not already noted in the Analysis Report or QA/QC Report: None.

Page 9 of 10

58 of 85

NEB Issued: 11/14/19

Cooler Vee No How How How How How How How How How Ho		Data Format Excel PDF GIS/Key Cuther Data Package Tier il Checklist Full Data Package* Other Surcharge Applies
Data Delin Fax: Data Delin Fax: Phone: A. Email: Kaykin		MA MA MA MA Certification MA GW-1 MVRA esMART GW GW-2 SW Protection GW-2 GW-3 GA Mobility S-1 GW-1 S-2 GW-2 S-2 GW-3 GB Mobility S-2 GW-1 S-2 GW-2 S-2 GW-3 NC DEC S-3 GW-1 S-3 GW-2 S-3 GW-3 UC DEC S-3 GW-1 S-3 GW-2 S-3 GW-3 Other State where samples were collected:
CHAIN OF CUSTODY RECORD 587 East Middle Tumpike, P.O. Box 370, Manchester, CT 06040 Email: info@phoenixlabs.com Fax (860) 645-8823 Client Services (860) 645-8726 Project: Fax 600 645-8726 Project: Fax 600 645-8726 Report to: Fin 12.045 Invoice to: Rin 12.045	Analysis Request Request X X X X X X X X X X X X X X X X X X X	RI (Residential) Direct Exposure Direct Exposure Direct Exposure Comm/Industrial) Direct Exposure GA Leachability GA-GW Objectives GB-GW Objectives
Environmental Laboratories, Inc. Customer: NEB - a Day of G7A Address: 171 Batson Datue Manchester, C7 01604	Sampler's Signature Martix Code: DW-Enrinking Water SW-Edround Water SW-Surface Water WW-Waste Water BW-Enrinking X = Customer Sample S-Soil SD-Soild W-Wipe OIL-Oil B-Bulk L-Liquid X = Customer Sample Sample Date Identification SAMPLE # COUNTY OF MARTIX Sample OB OB SAMPLE # COUNTY OF OIL	Relinquished by School by: Comments, Special Requirements or Regulations: Comments of



Monday, October 28, 2019

Attn: Ms. Kim Wills
New England Bioassay
a Division of GZA GeoEnvironmental
77 Batson Drive
Manchester, CT 06040

Project ID: PINE BROOK COUNTRY CLUB

SDG ID: GCE46543

Sample ID#s: CE46543 - CE46545

This laboratory is in compliance with the NELAC requirements of procedures used except where indicated.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory. This report is incomplete unless all pages indicated in the pagination at the bottom of the page are included.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200. The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Sincerely yours,

Phyllis/Shiller

Laboratory Director

NELAC - #NY11301 CT Lab Registration #PH-0618 MA Lab Registration #M-CT007 ME Lab Registration #CT-007 NH Lab Registration #213693-A,B NJ Lab Registration #CT-003 NY Lab Registration #11301 PA Lab Registration #68-03530 RI Lab Registration #63 UT Lab Registration #CT00007 VT Lab Registration #VT11301



587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045 Tel. (860) 645-1102 Fax (860) 645-0823

Sample Id Cross Reference

October 28, 2019

SDG I.D.: GCE46543

Project ID: PINE BROOK COUNTRY CLUB

Client Id	Lab Id	Matrix
EFFLUENT-2 C39-3922	CE46543	WASTE WATER
RECEIVING WATER-2 C39-3923	CE46544	WATER
EFFLUENT GRAB-2	CE46545	WASTE WATER



587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045 Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

October 28, 2019

FOR: Attn: Ms. Kim Wills

New England Bioassay

a Division of GZA GeoEnvironmental

77 Batson Drive

Manchester, CT 06040

Sample Information

WASTE WATER

Date

Time

Matrix:

P.O.#:

Collected by:

10/23/19

8:30

Location Code:

NEB

Received by:

CP

10/23/19

16:32

Rush Request:

Standard

Analyzed by: see "By" below

Custody Information

SDG ID: GCE46543

22610

aboratory Data

Phoenix ID: CE46543

Project ID:

PINE BROOK COUNTRY CLUB

Client ID:

EFFLUENT-2 C39-3922

RL/

Parameter Result **PQL** Ammonia as Nitrogen 0.08 0.05

Units

mg/L

Dilution

1

Date/Time 10/26/19

By

KDB

Reference

E350.1

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext. 200. The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Phyllis Shiller, Laboratory Director

October 28, 2019

Reviewed and Released by: Helen Geoghegan, Project Manager

Ver 1

Page 3 of 9



587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045 Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

October 28, 2019

FOR: Attn: Ms. Kim Wills

New England Bioassay

a Division of GZA GeoEnvironmental

77 Batson Drive

Manchester, CT 06040

Sample Information

WATER

Custody Information

Date

Time

Matrix:

Collected by:

10/23/19

9:00

Location Code:

NEB

Received by:

10/23/19 16:32

Rush Request:

Analyzed by:

see "By" below

Dilution

1

P.O.#:

Standard 22610

.aboratory Data

SDG ID: GCE46543 Phoenix ID: CE46544

Project ID:

PINE BROOK COUNTRY CLUB

Client ID:

RECEIVING WATER-2 C39-3923

DI /

Parameter	Result	PQL	
Ammonia as Nitrogen	0.14	0.05	

Units

Date/Time

Reference

Ammonia as Nitrogen

0.05

mg/L

10/26/19

KDB E350.1

Ву

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200. The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Phyllis Shiller, Laboratory Director

October 28, 2019

Reviewed and Released by: Helen Geoghegan, Project Manager



587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045 Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

October 28, 2019

FOR:

Attn: Ms. Kim Wills

New England Bioassay

a Division of GZA GeoEnvironmental

77 Batson Drive

see "By" below

Manchester, CT 06040

Sample Information

WASTE WATER

Date

Time

Matrix:

Collected by:

10/23/19

8:41

Location Code:

NEB

Received by: Analyzed by:

10/23/19

16:32

Rush Request: P.O.#:

Standard 22610

aboratory Data

Custody Information

SDG ID: GCE46543

Phoenix ID: CE46545

Project ID:

PINE BROOK COUNTRY CLUB

Client ID:

EFFLUENT GRAB-2

DI /

Parameter	Result	PQL	Units	Dilution	Date/Time	Ву	Reference
Chlorine Residual	< 0.02	0.02	mg/L	1	10/23/19 18:54	0	SM4500CLG-97
рН	7.19	1.00	pH Units	1	10/24/19 00:39	AP/KDE	3 SM4500-H B-11

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-

The regulatory hold time for Chlorine is immediately. This Chlorine was performed in the laboratory and may be considered outside of hold-time.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200. The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Phyllis Shiller, Laboratory Director

October 28, 2019

Reviewed and Released by: Helen Geoghegan, Project Manager

Ver 1



587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045 Tel. (860) 645-1102 Fax (860) 645-0823

QA/QC Report

October 28, 2019

QA/QC Data

SDG I.D.: GCE46543

Parameter	Blank	Bik RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 503046 (pH),	QC Sample	No: C	E46275 (C	E46545	j)								
pН			7.66	7.66	0	97.9						85 - 115	20
QA/QC Batch 503333 (mg/L)), QC Samp	le No:	CE46177	(CE465	43, CE	46544)							
Ammonia as Nitrogen	BRL	0.05	0.10	0.18	NC	98.1			98.0			90 - 110	20
QA/QC Batch 502998 (mg/L), QC Sample No: CE45856 (CE46545)													
Chlorine Residual	BRL	0.02	<0.02	<0.02	NC	102							

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

RPD - Relative Percent Difference

LCS - Laboratory Control Sample

LCSD - Laboratory Control Sample Duplicate

MS - Matrix Spike

MS Dup - Matrix Spike Duplicate

NC - No Criteria

Intf - Interference

Phyllis/Shiller, Laboratory Director

October 28, 2019

Monday, October 28, 2019 Criteria: None

Sample Criteria Exceedances Report GCE46543 - NEB

State: CT RL Analysis
SampNo Acode Phoenix Analyte Criteria Units

Phoenix Laboratories does not assume responsibility for the data contained in this exceedance report, It is provided as an additional tool to identify requested criteria exceedences. All efforts are made to ensure the accuracy of the data (obtained from appropriate agencies). A lack of exceedence information does not necessarily suggest conformance to the criteria. It is ultimately the site professional's responsibility to determine appropriate compliance.

Page 7 of 9

66 of 85 NEB Issued: 11/14/19

^{***} No Data to Display ***



587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045 Tel. (860) 645-1102 Fax (860) 645-0823



Analysis Comments

October 28, 2019

SDG I.D.: GCE46543

The following analysis comments are made regarding exceptions to criteria not already noted in the Analysis Report or QA/QC Report: None.

Page 8 of 9

67 of 85 NEB Issued: 11/14/19

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ZHC	JEINIX 🐃			587	East Mic Email: se	Idle Turr rvice@p	' East Middle Turnpike, P.O. Box 3 Email: service@phoenixlabs.com	587 East Middle Tumpike, P.O. Box 370, Manchester, CT 06040 Email: service@phoenixlabs.com Fax (860) 645-0823	06040 23		Fax #: Email: kimber	Fax #: Email: kimberly wills@gza.com	
Environm	Environmental Laboratories, Inc.	Inc.			ပ	lient S	ervices (Client Services (860) 645-8726	0	Format:	q	□ Pdf	Gis Key
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Address: 77	77 Batson Drive				<u>ac</u>	eport to	Report to: Kim Wills	S		Phone #:		860-643-9560	
ų b	Manchester, CT 06042			Î	드	voice to	Invoice to: Kim Wills	S	£ 1	Fax #:	860-64	860-646-7169	1
	Client Sample - Information - Identification	·Identifica	tion		L			/ King			NO.		1
Sampler's Signature			_ Date		 R A	Analysis Request		No of the last of				**************************************	1400
Matrix Code: DW≂drinking water GW≕groundwater	WW=wastewater SL=sludge	S=soil/solid O=other A=air	her			10	Train in the second	Train To Se					Roj / Juga
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8	7	de la			100		600	3 Days*		GA Mobility GB Mobility		GW-3	
Comments, Special	Comments, Special Reduirements or Regulations:							Other		SW Protection Res. Vol.		% % □□	
Please see detection	Please see detection limits (MLs) listed next to each parameter above	h paramete	er above					* Surcharge Applies		Ind. Vol.		MCP C	MCP Certification Other
Please CC: Melanie	Please CC Malanie Criff@nza.com.and Robin Fault@nza.com	lk@cza cz	shoos oo me	<u> </u>									
200	23	200		2									



Thursday, October 31, 2019

Attn: Ms. Kim Wills
New England Bioassay
a Division of GZA GeoEnvironmental
77 Batson Drive
Manchester, CT 06040

Project ID: PINE BROOK COUNTRY CLUB

SDG ID: GCE48231

Sample ID#s: CE48231 - CE48233

This laboratory is in compliance with the NELAC requirements of procedures used except where indicated.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory. This report is incomplete unless all pages indicated in the pagination at the bottom of the page are included.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200. The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Sincerely yours,

Phyllis/Shiller

Laboratory Director

NELAC - #NY11301 CT Lab Registration #PH-0618 MA Lab Registration #M-CT007 ME Lab Registration #CT-007 NH Lab Registration #213693-A,B NJ Lab Registration #CT-003 NY Lab Registration #11301 PA Lab Registration #68-03530 RI Lab Registration #63 UT Lab Registration #CT00007 VT Lab Registration #VT11301

NEB Issued: 11/14/19



587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045 Tel. (860) 645-1102 Fax (860) 645-0823

Sample Id Cross Reference

October 31, 2019

SDG I.D.: GCE48231

Project ID: PINE BROOK COUNTRY CLUB

Client Id	Lab Id	Matrix
EFFLUENT 3 C39-3948	CE48231	WASTE WATER
RECEIVING WATER 3 C39-3949	CE48232	WATER
EFFLUENT GRAB 3	CE48233	WASTE WATER



587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045 Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

October 31, 2019

FOR: Attn: Ms. Kim Wills

New England Bioassay

a Division of GZA GeoEnvironmental

77 Batson Drive Manchester, CT 06040

Sample Information **Custody Information** Date Time Matrix: **WASTE WATER** Collected by: 10/25/19 7:03 Location Code: Received by: **NEB** В 10/25/19 15:06

Rush Request: Standard Analyzed by: see "By" below

P.O.#: 22610

SDG ID: GCE48231 .aboratory Data

Phoenix ID: CE48231

Project ID: PINE BROOK COUNTRY CLUB

Client ID: **EFFLUENT 3 C39-3948**

RL/

Parameter	Result	PQL	Units	Dilution	Date/Time	Ву	Reference
Ammonia as Nitrogen	0.27	0.10	mg/L	2	10/30/19	KDB	E350.1

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200. The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Phyllis Shiller, Laboratory Director

October 31, 2019

Reviewed and Released by: Helen Geoghegan, Project Manager

Ver 1

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Page 3 of 9



587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045 Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

October 31, 2019

FOR: Attn: Ms. Kim Wills

New England Bioassay

a Division of GZA GeoEnvironmental

77 Batson Drive

Manchester, CT 06040

Sample Information

WATER

NEB

Standard

22610

Custody Information

Collected by: Received by:

: В

В

7:47 15:06

Time

Analyzed by: see "By" below

Laboratory Data

SDG ID: GCE48231

Reference

Phoenix ID: CE48232

KDB E350.1

Date

10/25/19

10/25/19

Project ID:

Matrix:

P.O.#:

Location Code:

Rush Request:

PINE BROOK COUNTRY CLUB

Client ID:

RECEIVING WATER 3 C39-3949

RL/

Parameter Result PQL Units Dilution Date/Time
Ammonia as Nitrogen 0.08 0.05 mg/L 1 10/30/19

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200. The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Phyllis Shiller, Laboratory Director

October 31, 2019

Reviewed and Released by: Helen Geoghegan, Project Manager

Ver 1

Page 4 of 9



Environmental Laboratories, Inc.

587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045 Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

October 31, 2019

Attn: Ms. Kim Wills FOR:

New England Bioassay

a Division of GZA GeoEnvironmental

77 Batson Drive Manchester, CT 06040

Sample Information Custody Information Date Time Matrix: **WASTE WATER** Collected by: 10/25/19 7:04 Received by: Location Code: **NEB** В 10/25/19 15:06

Rush Request: Analyzed by: Standard see "By" below

P.O.#: 22610

SDG ID: GCE48231 aboratory Data

Phoenix ID: CE48233

Project ID: PINE BROOK COUNTRY CLUB

Client ID: **EFFLUENT GRAB 3**

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	Ву	Reference
Chlorine Residual	< 0.02	0.02	mg/L	1	10/25/19 18:08	0	SM4500CLG-97
pH	7.60	1.00	pH Units	1	10/26/19 00:39	AP/KDB	SM4500-H B-11

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-

The regulatory hold time for Chlorine is immediately. This Chlorine was performed in the laboratory and may be considered outside of hold-time.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200. The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Śhiller, Laboratory Directoг

Reviewed and Released by: Helen Geoghegan, Project Manager

Ver 1

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Environmental Laboratories, Inc.

587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045 Tel. (860) 645-1102 Fax (860) 645-0823

QA/QC Report

October 31, 2019

QA/QC Data

SDG I.D.: GCE48231

Parameter	Blank	Bik RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
QA/QC Batch 503450 (pH), QC	Sample	No: C	E48016 (C	E48233	3)									
pН			7.09	7.14	0.70	97.3						85 - 115	20	
Comment:														
Additional: LCS acceptance range	e is 85-11	5% MS	acceptance	e range 7	75-125%									
QA/QC Batch 503873 (mg/L), (C Samp	ole No:	CE48231	(CE482	31, CE	48232)								
Ammonia as Nitrogen	BRL	0.05	0.27	0.35	25.8	97.2			92.2			90 - 110	20	•
QA/QC Batch 503409 (mg/L), 0	QC Samp	ole No:	CE47881	(CE482	33)									
Chlorine Residual	BRL	0.02	<0.02	<0.02	NC	105								

r = This parameter is outside laboratory RPD specified recovery limits.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

RPD - Relative Percent Difference

LCS - Laboratory Control Sample

LCSD - Laboratory Control Sample Duplicate

MS - Matrix Spike

MS Dup - Matrix Spike Duplicate

NC - No Criteria

Intf - Interference

Phyllis/Shiller, Laboratory Director

October 31, 2019

Thursday, October 31, 2019

Criteria: None

Sample Criteria Exceedances Report GCE48231 - NEB

State:	MA						RL	Analysis	
SampNo	Acode	Phoenix Analyte	Criteria	Result	RL	Criteria	Criteria	Units	

^{***} No Data to Display ***

Phoenix Laboratories does not assume responsibility for the data contained in this exceedance report. It is provided as an additional tool to identify requested criteria exceedences. All efforts are made to ensure the accuracy of the data (obtained from appropriate agencies). A lack of exceedence information does not necessarily suggest conformance to the criteria. It is ultimately the site professional's responsibility to determine appropriate compliance.



Environmental Laboratories, Inc.

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Analysis Comments

October 31, 2019

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SDG I.D.: GCE48231

The following analysis comments are made regarding exceptions to criteria not already noted in the Analysis Report or QA/QC Report: None.

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CHAIN OF CUSTODY RECORD										ŀ		7	12/21	3[
Project	H vironm	HNIX	1 100		587	CHAIN East Middle Email: servic	Turnpike, P.O. e@phoenixlabs	TODY: Box 370, I	RECORD Anchester, CT 0604 ax (860) 645-0823 345-8726	0	Data Delin Fax#	emp C, Check onle	of of	Ke
Invoice to: Kim Wills Fax #: 860-646- Time Sampled Fax #: 860-646- Time	omer: N	ew England Bioassay Batson Drive				Proje	oct: Kim	Aler	k Country C		Project P.O.	22 860-643-956	010	
Time Sampled William William		inchester, CT 06042			1	. iovil	ce to: Kim	Wills		î f	Fax#:	860-646-7169		¥1 23
Time Sampled Yell Sampled Yell Sampled Yell Sampled Yell Sampled Yell	ler's ture	Client Sample - Information	- Identifica	ntion Date		Analy	sis	1/00	THE ST.		1/3/	2011/201	1884	
Time Sampled Sampled	IX Code: drinking wate groundwater	WW≕wastewater SL≐sludge		her			Train To	A PARTY OF THE PAR					Sirrings	20 P
1 07047 x x x 1 1 1 1 1 1 1	oenix mple #	Customer Sample Identification	Sample Matrix	Date Sampled	Time Sampled	COLUMN	ST ROY			\$05.165		OSCITION TO SERVICE	218088 1084 2084	8
Date: Time: Turnaround; Date: Turnaround; Date: Turnaround; Date: Turnaround; Date: Day: Caw Protection Day: Caw Mobility Da	123	Effluent-3 059-3948 ('59-3949 Receiving Water-3	₩ c	10/25/P										
Date: Time: Turnaround; Requirements for CI Requirements Pays Content Co	133	Effluent Grab - 3		10/8/5/19		+	×				1			
Date: Time: Tumaround: Requirements for CT Pay* Co-25-15 C				8										
10ay* Res Criteria 10ay* Res Criteria 2 Days* GW Protection 3 Days* GA Mobility CA	Relinquis	hed by:	Accepte	pd by:		Date:	Time:		Turnaround:	Requirem	ents for CT	Reg	lrements for	4
	smis, Special	Requirements or Regulations:	th paramete	a above		61-52		NII	1 Day* 2 Days* 3 Days* C Standard Other urcharge Applies		Criteria Protection Mobility Mobility Vol. Vol.		GW-1 GW-2 GW-3 S-1 S-2 S-3 MCP Certifica	ation

SAMPLE RECEIPT CHEMISTRY & CHAIN OF CUSTODY DOCUMENTS

NEW ENGLAND BIOASSAY - INITIAL CHEMISTRY DATA

PERMITTEE:	Pine Brook Country Club	
NEB JOB #	05.0752101.00	

DATE RECEIVED	10/2	1/19	10/2	3/19	10/2	5/19
SAMPLE TYPE:	EFF #1	BROOK #1	EFF #2	BROOK #2	EFF #3	BROOK #3
COC#	C39-3895	C39-3896	C39-3922	C39-3923	C39-3948	C39-3949
pH (SU)	7.1	6.9	7.2	7.1	7.3	7.2
Temperature (°C)	4.8	4.3	3.8	3.6	3.3, 4.2	6.1
Dissolved Oxygen (mg/L)	8.6	10.6	9.8	10.3	8.1	9.6
Conductivity (µmhos)	900	360	882	323	828	354
Salinity (ppt)	<1	<1	<1	<1	<1	<1
TRC - DPD (mg/L)	0.008	0.007	0.010	0.004	0.007	0.010
TRC - Amperometric (mg/L)	N/A	N/A	N/A	N/A	N/A	N/A
Hardness (mg/L as CaCO₃)	104	56	104	56	102	58
Alkalinity (mg/l as CaCO ₃)	55	35	45	30	55	35
Tech Initials	СН	СН	КО	ко	СН	СН

NOTE: NA = NOT APP	PLICABLE	
		. 1
Data Reviewed By:	Date Reviewed:	11/13/19

NEW ENGLAND BIOASSA'	Y- CHAIN-OF-CUSTODY
EFFLUENT Sample Set # 1 Sample: Steven Hansen	RECEIVING WATER
Sampler: Steven Hansen	Sampler: Steven Hansen
Title: Operator	Title: Operator
Facility: Pine Brook Country Club	Facility: Pine Brook Country Club
Sampling Method: X Composite	Sampling Method: X Grab
Sample ID: Effluent	Sample ID: Pine Brook
Start Date: 10-20-19 Time: 13.53	Date Collected: 10-21-14
End Date: 10-21-19 Time: 8122	Time Collected: 8145
Sampling Method: X Grab (for pH and TRC only X)	
Date Collected: 10-21-19	
Time Collected: 813	
Time Concetta.	
Sample Type: Prechlorinated	
Dechlorinated Unchlorinated	
Chlorinated	
Effluent Sampling Location and Procedures:	2-11- 1 2 - 111/
composite sampler ofter	Filter betwee UV.
Receiving Water Sampling Location and Procedures:	
	ream of outfall
Requested Analysis: X Chronic and modified acute	
Sample Sh	nipment
Method of Shipment: NEB Courier	
Relinquished By: Uth Huma Date:	10-21-19 Time: 9:44
Received By: Date:	10-21-19 Time: 0944
Relinquished By: Date:	10-24-19 Time: 1/23
Received By: Date:	16/21/19 Time: 1123
Optional In	formation
Purchase Order # to reference on invoice:	Received
	ON ICE
FOR NEB US	
* Please return all ice packs NEB has provided to insure ac	
Temperature of Effluent Upon Receipt at Lab: <u>'+'8 ∘C</u> Te	mperature of Receiving Water Upon Receipt at Lab: 4.3 °C
	eceiving Water COC#

IF THIS COOLER IS MISPLACED OR THE LABEL IS LOST, PLEASE SHIP TO: KIM WILLS, NEW ENGLAND BIOASSAY, 77 BATSON DRIVE, MANCHESTER CT 06042

NEW ENGLAND BIOASSA	Y- CHAIN-OF-CUSTODY
Sample: Steven Hansen	RECEIVING WATER
Sampler: Steven Hansen	Sampler: Steven Hansen
Title: Operator	Title: Operator
Facility: Pine Brook Country Club	Facility: Pine Brook Country Club
Sampling Method: X Composite Sample ID: Effluent Start Date: 10/33/19 Time: 15.0 / End Date: 10/33/19 Time: 8:30 Sampling Method: X Grab (for pH and TRC only X) Date Collected: 10/33/19 Time Collected: 8:4 (Sampling Method: X Grab Sample ID: Pine Brook Date Collected: 10 23-19 Time Collected: 9:00
Sample Type: Prechlorinated Dechlorinated Unchlorinated Chlorinated	
Effluent Sampling Location and Procedures: Compalite Sampler after fi	Iter and before UV
Receiving Water Sampling Location and Procedures:	ipstream of out fall
Requested Analysis: X Chronic and modified acute	
Sample St	ipment
Method of Shipment: NEB Courier Relinquished By: Date: Date	10-23-19 Time: 935 15/23/19 Time: 9:50 16/23/19 Time: 11:35
Received By: Date:	10/23/19 Time: 1/35
Bale.	Time. (1)
Optional In:	formation
Purchase Order # to reference on invoice:	Received ON ICE
FOR NEB U	SE ONLY
* Please return all ice packs NEB has provided to insure ac	curate temperature upon receipt to the NEB laboratory.
Temperature of Effluent Upon Receipt at Lab: 3 °C Te	mperature of Receiving Water Upon Receipt at Lab: 36 °C
0	eceiving Water COC# <u>C39-3923</u>

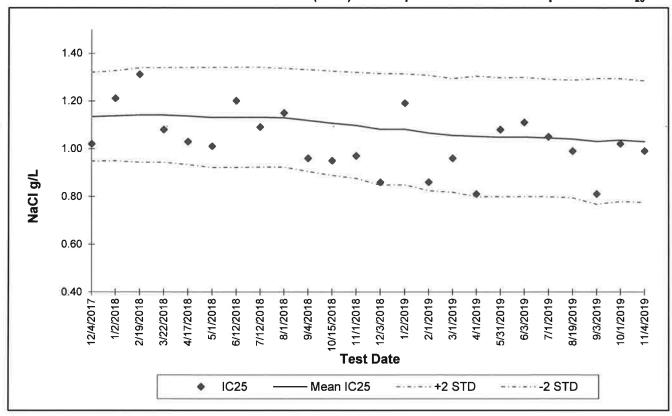
IF THIS COOLER IS MISPLACED OR THE LABEL IS LOST, PLEASE SHIP TO: KIM WILLS, NEW ENGLAND BIOASSAY, 77 BATSON DRIVE, MANCHESTER CT 06042

NEW ENGLAND BIOASSAY	Y- CHAIN-OF-CUSTODY
EFFLUENT Sample: Steve Hansen	RECEIVING WATER
Sampler: <u>steve</u> Hansen	Sampler: Steve Hansen
Title: Operator	Title: Operator
Facility: Pine Brook Country Club	Facility: Pine Brook Country Club
Sampling Method: X Composite	Sampling Method: X Grab
Sample ID: <u>Effluent</u>	Sample ID: Pine Brook
Start Date: 10/24/19 Time: 17:34	Date Collected: /0-25-19
End Date: 10 25/19 Time: 7203	Time Collected: 7:47
Receiving Water Sampling Location and Procedures:	Filter and before UV
Requested Analysis: X Chronic and modified acute	
Sample Sh	ipment
Method of Shipment: NEB Courier	
11/01	(0) = 10 - 10 - 10
	10-25-19 Time: 10:05 AM
Received By: Date:	10-25-19 Time: 10:05 AM
Relinquished By: Date: _/	10-25-19 Time: //.'40
Received By: Date:	16/25/19 Time: 1146
Optional Inf	ormation
Орионат пи	ormation .
Purchase Order # to reference on invoice:	Received
	ON ICE
FOR NEB US	
* Please return all ice packs NEB has provided to insure acc	curate temperature upon receipt to the NEB laboratory.
Temperature of Effluent Upon Receipt at Lab: 3.3, 4.2 oc	nperature of Receiving Water Upon Receipt at Lab: 6. 0.
	ceiving Water COC#
Re Re	ceiving water COC#

IF THIS COOLER IS MISPLACED OR THE LABEL IS LOST, PLEASE SHIP TO: KIM WILLS, NEW ENGLAND BIOASSAY, 77 BATSON DRIVE, MANCHESTER CT 06042

REFERENCE TOXICANT CHARTS

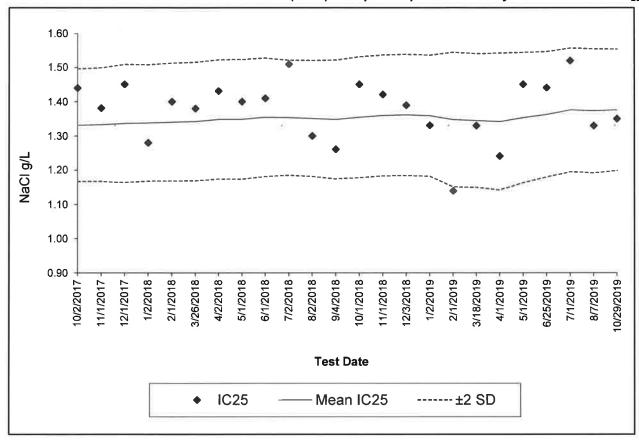
New England Bioassay
Reference Toxicant Data: Sodium chloride (NaCl) Ceriodaphia dubia Chronic Reproduction IC₂₅



								Repro PMSD	Avg. PMSD
Test ID	Date	IC ₂₅	Mean IC ₂₅	STD	-2STD	+2STD	Avg. CV	(%)	(%)
17-1846	12/4/2017	1.02	1.13	0.09	0.95	1.32	0.08	14.69	16.60
18-10	1/2/2018	1.21	1.14	0.09	0.95	1.33	0.08	10.81	16.36
18-271	2/19/2018	1.31	1.14	0.10	0.94	1.34	0.09	22.90	16.56
18-416	3/22/2018	1.08	1.14	0.10	0.94	1.34	0.09	17.59	16.88
18-553	4/17/2018	1.03	1.14	0.10	0.93	1.34	0.09	38.54	17.77
18-607	5/1/2018	1.01	1.13	0.10	0.92	1.34	0.09	24.65	18.25
18-816	6/12/2018	1.20	1.13	0.11	0.92	1.34	0.09	46.97	19.59
18-996	7/12/2018	1.09	1,13	0.10	0.92	1.34	0.09	11.41	19.70
18-1103	8/1/2018	1.15	1.13	0.10	0.92	1.34	0.09	17.23	19.67
18-1315	9/4/2018	0.96	1.12	0.11	0.91	1.33	0.10	22.12	20.09
18-1577	10/15/2018	0.95	1.11	0.11	0.89	1.33	0.10	24.32	20.64
18-1625	11/1/2018	0.97	1,10	0.11	0.88	1.32	0.10	31.57	21.34
18-1756	12/3/2018	0.86	1.08	0.12	0.85	1.32	0.11	15.77	21.00
19-8	1/2/2019	1.19	1.08	0.12	0.85	1.31	0.11	40.72	21.30
19-177	2/1/2019	0.86	1.07	0.12	0.82	1.31	0.11	18.71	21.63
19-265	3/1/2019	0.96	1.06	0.12	0.82	1.29	0.11	19.84	22.13
19-403	4/1/2019	0.81	1.05	0.13	0.80	1.30	0.12	10.09	21.85
19-674	5/31/2019	1.08	1.05	0.12	0.80	1.30	0.12	15.59	21.93
19-688	6/3/2019	1.11	1.05	0.12	0.80	1.30	0.12	15.24	22.23
19-926	7/1/2019	1.05	1.04	0.12	0.80	1.29	0.12	12.60	22.23
19-1154	8/19/2019	0.99	1.04	0.12	0.79	1.29	0.12	24.17	22.24
19-1226	9/3/2019	0.81	1.03	0.13	0.77	1.29	0.13	19.49	21.64
19-1396	10/1/2019	1.02	1.04	0.13	0.78	1.29	0.12	18.01	21.38
19-1560	11/4/2019	0.99	1.03	0.13	0.77	1.28	0.12	14.03	21.13

National 75th Percentile and 90th Percentile CV Averages for Ceriodaphnia Reproduction IC25 (EPA 833-R-00-003): 0.45 - 0.62 PMSD Upper and Lower Bounds for Ceriodaphnia Reproduction (EPA-821-R-02-013): 13% - 47%

New England Bioassay
Reference Toxicant Data: Sodium chloride (NaCl) *Pimephales promelas* 7-day Chronic Growth IC₂₅



Test ID	Date	IC ₂₅	Mean IC ₂₅	STD	-2STD	+2STD	Avg. CV	Growth PMSD (%)	Avg. PMSD (%)
17-1522	10/2/2017	1.44	1.33	0.08	1.17	1.50	0.06	10.36	10.12
17-1696	11/1/2017	1.38	1.33	0.08	1.17	1.50	0.06	9.27	10.08
17-1809	12/1/2017	1.45	1.34	0.00	1.16	1.51	0.06	26.17	10.78
18-11	1/2/2018	1.43	1.34	0.09	1.17	1.51	0.06	6.16	10.78
18-184	2/1/2018	1.40	1.34	0.09	1.17	1.51	0.06	10.52	10.51
18-416	3/26/2018	1.38	1.34	0.09	1,17	1.51	0.06	9.14	10.49
18 -4 72	4/2/2018	1.43	1.35	0.09	1.17	1.52	0.06	6.25	10.57
18-608	5/1/2018	1.40	1.35	0.09	1.17	1.52	0.06	11.80	10.88
18-745	6/1/2018	1.41	1.35	0.09	1.18	1.53	0.06	13.87	11.08
18-919	7/2/2018	1.51	1.35	0.08	1.19	1.52	0.06	12.86	10.83
18-1104	8/2/2018	1.30	1.35	0.08	1.18	1.52	0.06	9.21	10.63
18-1316	9/4/2018	1.26	1.35	0.09	1.18	1.52	0.06	11.89	10.84
18-1512	10/1/2018	1.45	1.36	0.09	1.18	1.53	0.06	8.61	10.76
18-1626	11/1/2018	1.42	1.36	0.09	1.18	1.54	0.06	9.48	10.87
18-1757	12/3/2018	1.39	1.36	0.09	1.18	1.54	0.06	9.70	10.95
19-9	1/2/2019	1.33	1.36	0.09	1.18	1.54	0.07	8.91	11.06
19-178	2/1/2019	1.14	1.35	0.10	1.15	1.54	0.07	6.84	10.94
19-376	3/18/2019	1.33	1.35	0.10	1.15	1.54	0.07	15.36	10.73
19-404	4/1/2019	1.24	1.34	0.10	1.14	1.54	0.07	7.57	10.73
19-541	5/1/2019	1.45	1.35	0.10	1.16	1.54	0,07	7.92	10.62
19-823	6/25/2019	1.44	1.36	0.09	1.18	1.55	0.07	10.75	10.76
19-927	7/1/2019	1.52	1.38	0.09	1.20	1.56	0.07	14.21	10.91
19-1090	8/7/2019	1.33	1.37	0.09	1.19	1.55	0.07	12.60	10.97
19-1559	10/29/2019	1.35	1.38	0.09	1.20	1,55	0.06	9.92	10.81

National 75th Percentile and 90th Percentile CV Averages for Fathead Growth IC25 (EPA 833-R-00-003): 0.38 - 0.45 PMSD Upper and Lower Bounds for Fathead Growth (EPA-821-R-02-013): 12% - 30%